THE SIGNIFICANCE OF KENNY WHEELER IN THE EVOLUTION OF JAZZ COMPOSITION FROM DIATONIC TO CHROMATIC BACKGROUND

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ABSTRACT

It is the intention of this paper to look at some of Wheeler's music from a very specific period in his career (late 1970s through to early 1980s), place it in an overall developmental process in jazz composition already underway, and to examine it using some techniques that have been devised by the author over a long period of time. It is not intended for this document to outline any sort of *process* that is Wheeler's per se, however there is a process that will be examined here; it is that of this author's own development as an improviser.

This process has had Wheeler looming over it since near the very beginning, and, as more was learned about his music along with (for lack of a better term) more 'mainstream' music, this author found it interesting that they shared more than they differed. The differences were not so much of a *kind* but of a *viewpoint*, a viewpoint that seemed to look through the same window, but out onto a bigger landscape.

This document endeavours to shed some light on the relationship of 'diatonicism' and 'chromaticism', but not in a surface way. In the action of moving through this paper it is hoped that a more subtle background idea of chromaticism can be seen that is still within the realm of perceived tonality. It is an improviser's process, yet a compositional one. If one looks at each of these in terms of 'the manipulation of the stuff of music' then they are the same.

The lens through which this idea of chromaticism will be examined is what will be termed the 'voicing', and in defining this voicing in a very specific manner, it can be

shown that it carries inside it all the structure, voice leading, functionality and coherence required for the negotiation of tonal systems, both closed (diatonic) and open (chromatic). This will be a fairly lengthy process, but one that is felt necessary in order to appreciate the ‘local tonality’ vs. ‘global chromaticism’ which Wheeler’s music exemplifies.

After the process of familiarization with the voicing and some analytical techniques, two compositions of Wheeler’s from the late 1970s into the early 1980s will be examined using these techniques.

ACKNOWLEDGEMENTS

A life in music is never undertaken alone, and to acknowledge everyone involved is too large a task to be undertaken here. However, there are several people without whom this project would not have been completed. Some of these are:

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Tom Monohan, who opened up the bass for me as an instrument, and taught me how to be my own bass teacher.

Dave Holland, who opened up the bass for me as a vehicle for creative expression, and showing me how to be my own music teacher.

Jim Blackley, who showed me the importance of being truly honest with myself.

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Kenny Wheeler, for his humility, humour, and arrestingly beautiful music.

So many great musicians who also happen to be some of my best friends, and from whose music I have learned so much, just a few of whom are: Jeff Johnston, Mike Murley, Roy Patterson, Stefan Bauer, Brian Dickinson, Geoff Young, and Darren Sigesmund.

Barry Elmes, not only for his guidance as an older musician/mentor 30 years ago (he introduced me to much historically significant jazz music), but also for his patience and guidance as my Faculty Advisor, which were essential to the completion of this project.

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PART I:

Introduction

Kenneth Vincent John Wheeler was born in Toronto, Canada in January of 1930 and after 22 years in Ontario, moved to London, England where he lived until his death in September 2014. There he made a reputation for himself as a trumpet player and composer, rising to international attention in the mid-1970s.[1]

While Wheeler's work as an improviser and a composer are well documented, his contributions to the harmonic language of jazz are not necessarily recognized as much as they could be. Or perhaps not recognized in a timely manner, as he certainly seems to be getting more acknowledgement now than he did when he was at the height of his inventiveness.[2]

Wheeler is often seen as a 'modern' composer/instrumentalist, and in a sense he is, but is certainly not what one would call a prodigy. His emergence on the English

[1] Mark Miller, *Boogie, Pete & The Senator: Canadian Musicians in Jazz: The Eighties* (Toronto: Nightwood Editions, 1987), 290-296. This is a good synopsis of Wheeler's career up to the mid-1980s.

[2] Gene Lees, "Kenny Wheeler: Slowly But Surely," JazzTimes, December 1999, http://www.jazztimes.com/articles/20565/-kenny-wheeler-slowly-but-surely
Lees states in this article that Wheeler, at this point, was appearing as a clinician at many of the major universities in the US.

scene in 1968 with his first recording as a leader[3] followed more than a dozen years of recording as a sideman and arranger for various artists (beginning in 1955 and 1957 respectively).[4] It wasn't until 1976 that his international reputation was launched with the release of *Gnu High*, a full 20 years since he began recording as a sideman in London.[5]

That he was in his mid-40s by the time he became known internationally may have contributed to the perception that Wheeler's place in the development of the jazz compositional language is later than it may actually be. The fact that he resided in London, and not New York, may also have had some bearing on this.

New York City in the 1960s was the centre of the world in terms of many developments in the language of improvised music and the gestation period from when ideas were hatched to when they were delivered to the world in the form of recordings was short indeed. Groups such as The Miles Davis Quintet and The John Coltrane Quartet were at the cutting edge of the development of concepts in jazz composition and performance and this, combined with great popularity and critical acclaim, assured that

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[3] Kenny Wheeler, *Windmill Tilter: The Story of Don Quixote*. Beat Goes On (E)BGOCD944, 2010, compact disc. (Originally released in 1969).

[4] A list of bandleaders may be found in Tom Lord's "The Jazz Discography Online," www.lordisco.com, including: Tommy Whittle (1955), Buddy Featherstonaugh (1956), Don Rendell (1957), Vic Lewis (1958), Woody Herman (1959), Johnny Dankworth (1960-67), Bill Russo (1963-64), Georgie Fame (1965-67), and Tubby Hayes (1966).

[5] February 1, 1976 according to www.ecmrecords.com/catalogue.

there was no shortage of support to record, release, and widely distribute anything that these groups (or indeed their individual members) happened to be developing at the time.

Musicians such as Herbie Hancock and Wayne Shorter are often cited in the tracing of developments in jazz composition through the 1960s, and rightly so. However, Wheeler is older than Shorter by over three years, and older than Hancock by more than a decade. This is in no way meant to diminish the contributions of Hancock and Shorter to the development of the idiom, only to underscore Wheeler's generational connection to the process. He is more a contemporary of Bill Evans than anyone in the 1960s Miles Davis Quintet (besides Davis himself).

In his article "Modes, Scales, Functional Harmony and Nonfunctional Harmony in the Compositions of Herbie Hancock" [6], Keith Waters describes the progression of pitch collection sourcing in modal music from the late 1950s (Miles Davis' *Kind of Blue*) to Hancock's compositions of the early 1960s as a movement from the modes of the major scale into the addition of the modes from the melodic minor scale. In fact, the mid 1960s were a crucible for many ideas that were bubbling forth from many directions.

The subsequent contributions of Wheeler can be seen as a continuation of this same progression, including the widening of source material into the 'harmonic scales' (minor and major). That these ideas only came to public awareness in the late 1970s does not necessarily mean that they weren't being thought about until then. In all probability

[6] Keith Waters, "Modes, Scales, Functional Harmony and Nonfunctional Harmony in the Compositions of Herbie Hancock," " *Journal of Music Theory*, Vol. 49, No. 2 (Fall 2005): 341-343, accessed July 16, 2014. *JSTOR*.

these concepts were being formulated long before, but not revealed until he had a chance to record them.

With regard to tonality, Wheeler's contribution goes further than just the introduction of some scales to the 'modal sourcing milieu'. In describing his propensity for writing tunes that start in one key and end up in another (usually a semitone up or down), and have to find their way completely through another key before finding their way back again, Wheeler states:

> Like most of my pieces, the second half is in a different pitch to the first half. I didn't really realize that I was doing that for a lot of years, until maybe ten years ago I thought "Oh, that's what I do"...and I was unhappy to know that, because I don't like to know what I do. I like to think it's instinctive. I know I have a system, but I don't really want to know what the system is.[7]

This 'different pitch' relationship, usually a semitone, sometimes a different interval, is something that has significance in the defining of a movement from diatonicism into a wider chromatic backdrop to foreground tonality, and it is something to which this paper will return after some clarification of these terms, and the building of a viewpoint from which some of Wheeler's music will be examined.

[7] "Bob Brookmeyer and Kenny Wheeler – Before the First Time," November 11, 2008, video clip, accessed January 23, 2016, Dailymotion, 1:40. http://www.dailymotion.com/video/x7dkn7_bob-brookmeyer-kenny-wheeler-before_music

On Diatonicism and Chromaticism

In a closed key-centred system, harmonic movement is achieved by moving between levels of the key itself. This is embellished by the use of more chromaticism, which is achieved by using 'mixture' (borrowing material and structures from other keys such as relative and/or parallel minor keys) and 'tonicization' (the brief cadencing into a subsidiary level of a key by preceeding it with its dominant).[8] Eventually, tonicization begins to incorporate more remote key areas, but always heard in the context of the 'home' key to which one returns.

As one moves toward a chromatic background the home key begins to lose its importance. The hierarchy of chords within a diatonic system becomes a hierarchy of diatonic systems within a wider global chromatic landscape. In his article "An Evolutionary Perspective on Nineteenth-Century Semitonal Relations", Patrick McCreless writes:

> …one might hypothesize that these examples trace the evolution in nineteenth century of the concept of a *harmonically based* chromatic tonal space, a space in which the guiding harmonic point of reference is not a single tonic triad to which all other sonorities are necessarily related but an entire twelve-key system of potential tonic triads…[9]

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[8] Gregory Proctor, "Technical Bases of Nineteenth-Century Chromatic Tonality: A Study in Chromaticism." 43-88. Ph.D. diss., Princeton University, 1978.

[9] Patrick McCreless, . "An Evolutionary Perspective on Nineteenth-Century Semitonal Relations." in *The Second Practice of Nineteenth-Century Tonality,* edited by William Kinderman and Harald Krebs. Lincoln: University of Nebraska Press, 1996. 98.

And also poses the question:

> … at what point do such procedures predominate to the extent that we experience diatonicism as a subset of the chromatic spatial universe rather than chromaticism as an inflection of the diatonic one?[10]

Mirroring these developments through the nineteenth century, jazz composition has been making a similar evolution from diatonic-based systems out into a wider landscape of a 'chromatic spatial universe', moving from the 'chromatic decoration of a diatonic system' towards the 'diatonic decoration of a chromatic system' where the chords themselves describe pathways of diatonic systems through a global chromatic background.

That point, to which McCreless refers in his 'at what point' question (above), is precisely the place that this document is attempting to describe, and is also the exact place that Wheeler occupies in the context of jazz composition.

Contrast McCreless' comments above with Wheeler's:

> I never think about key signatures. I never put a key signature on any of my pieces. Sometimes I try to figure out what key they're in at the actual moment, but there probably is a ...well, *maybe* there's a key signature (that) goes through the whole thing, I don't know, but I could never say what it is. But I might look and say…well for instance the first three chords are C minor, (then) a kind of B7 going to E minor. So you could say the first bar is in C minor, but then it goes right away from there in the second bar towards E minor. And the whole piece is like that. You could sort of go through it and say, "Well, now we're here, and now we're there." But not the whole piece, I couldn't say.[11]

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[10] McCreless, "An Evolutionary Perspective", 102.

[11] Brookmeyer and Wheeler, "Before the First Time", 3:01.

McCreless:

> Such questions have provocative implications for historical and evolutionary views of the development of chromatic tonality. Too often we understand this historical process only in terms of the musical surface, of local chromatic saturation and harmonic ambiguity. These features are important, to be sure, but the interaction of diatonic hearing and chromatic hearing…is equally significant, if not more so.[12]

McCreless' statement above is very important in the understanding of Wheeler's chromaticism in that the surface of the music at any given time never sounds like it is anything less than tonal. It is the underlying movement through keys, often ending up in key areas quite remote from the ones in which we were so entrenched mere seconds before, combined with instances where seemingly two or more keys (or harmonic movements) are heard simultaneously, that the more subtle levels of this type of background chromaticism are heard.

Yet through all the layering of harmonic meaning there is clarity. An overall sense of structure and 'rightness' is always present in even the most complex passages. An objective and quantifiable view into fundamental principles behind this 'structure and rightness' (words that seem far from objective and quantifiable) is what this document hopes to achieve.

[12] McCreless, "An Evolutionary Perspective", 102.

PART II: THE 'VOICING'

The 'Voicing' from the Major, Melodic Minor, and Diminished Scales

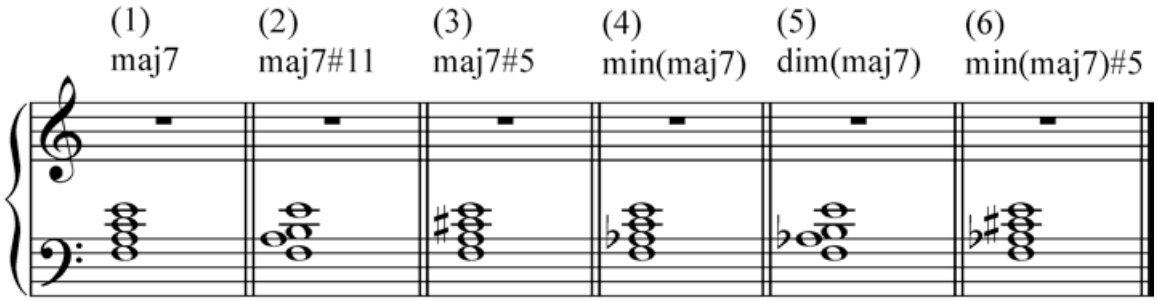
The term 'voicing' is one that is tossed about in music circles as having to do with the stacking of pitches vertically to express the desired organization of chord tones. There are any number of ways to 'voice' any particular chord, any of which can be looked at as valid as a way of expressing that chord. In this document however, the term 'voicing' will be used in a more basic and fundamental way. This will require some defining, as it will be applied repeatedly in a very specific manner throughout this discussion.

The particular voicings used here will be familiar to most jazz musicians as four-note 'left-hand' voicings used by pianists and arrangers throughout the second half of the 20th century.[13]. There are six of these basic voicings.

[13] These voicings, and the methodology that goes with them, were brought to my attention early in my musical development by jazz pianist, theoretician, and York University professor John Gittins (now retired) in the mid-1980s.

Figure 2-1.

The six basic Major 7th Voicings



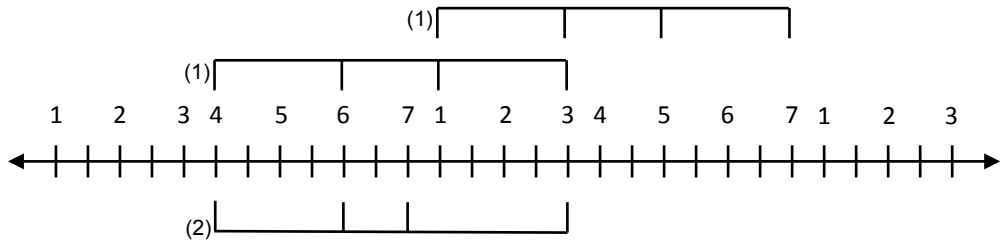
As Prof. Gittins explained, "If you put all these voicings over all the bass notes, somewhere in there you will find all the chords you will encounter in this music."[14]

The characteristic that is shared by all six of these structures is the interval of the major 7th (between the outer voices of all six), which when inverted, is a semitone. The basic diatonic scales used in tonal music (for now, the Major scale and the Melodic Minor scale) each have two semitones per octave and, as illustrated in Figure 2-2, several of these major 7th voicing structures can be built on the upper note of each of the two semitones found in each of these scales.

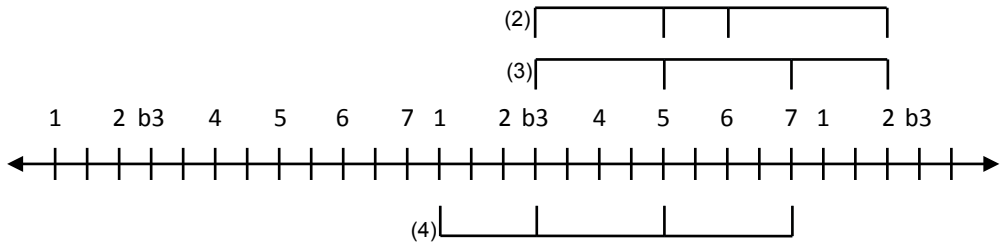
[14] Private conversation with Prof. Gittins during a break on a gig in the mid-1980s.

Figure 2-2.

a) Major Scale:



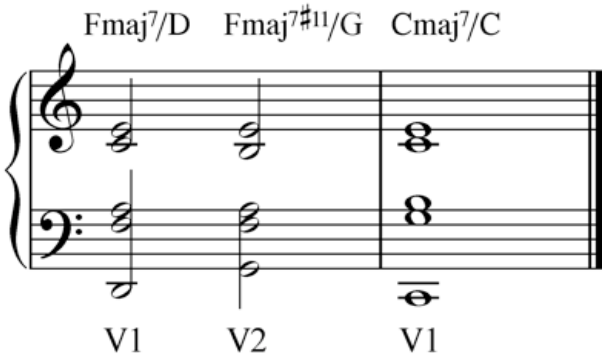
b) Melodic Minor Scale:



In section 'a' of Figure 2-2, voicings 1 and 2 are both found on the fourth degree of the major scale, and voicing 1 is also found on the 1st degree. A practical application of this can be seen in Figure 2-3 as a simple expression of a ii - V - I progression in C major.[15]

[15] This paper will follow the convention of using lower case Roman numerals to indicate minor quality chords, with upper case indicating major or dominant chords.

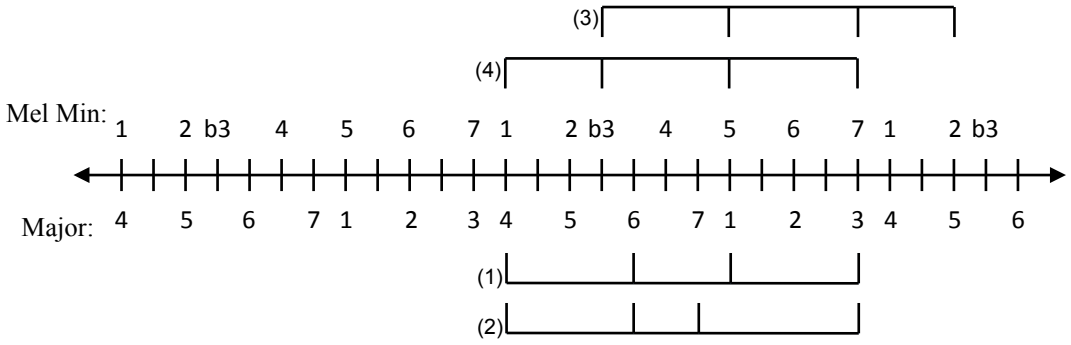
Figure 2-3.



In this progression, voicing 1 (as found on the fourth degree of C major) is placed above the bass note D to make Dmin^{9} (ii) , followed by voicing 2 above G to make G^{13} (V), which then progresses to voicing 1 (this time as found on the 1st degree of C major) to make Cmaj7 (I). This is a very simple example, but the important thing is to see the concept of the voicing as separate from the bass note.

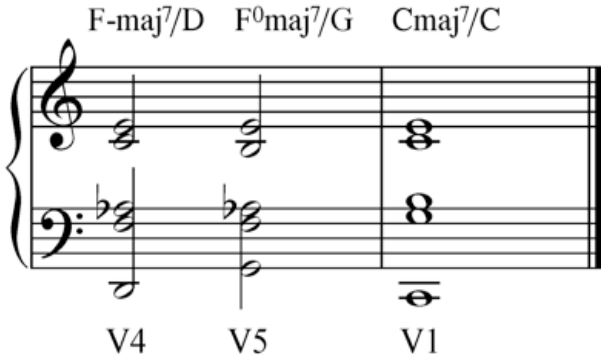
To bring voicings 3 and 4 into this picture one must 'borrow' them from another key (or scale) since they do not exist in the C major scale. If the major scale is juxtaposed with the melodic minor built on the fourth degree (of the original major scale, in this case C major), it can be seen in Figure 2-4 that voicing 4 (from melodic minor, as seen in Figure 2-2b) is found at the same pitch level as voicings 1 and 2 (in major).

Figure 2-4.



Using the same progression, and substituting voicing 4 (from the first degree of melodic minor) for voicing 1 (from 4th degree of major), Dmin^{9b5} is created, which is a chord of equivalent function to the previous Dmin9 (a ii chord, or sub-dominant).

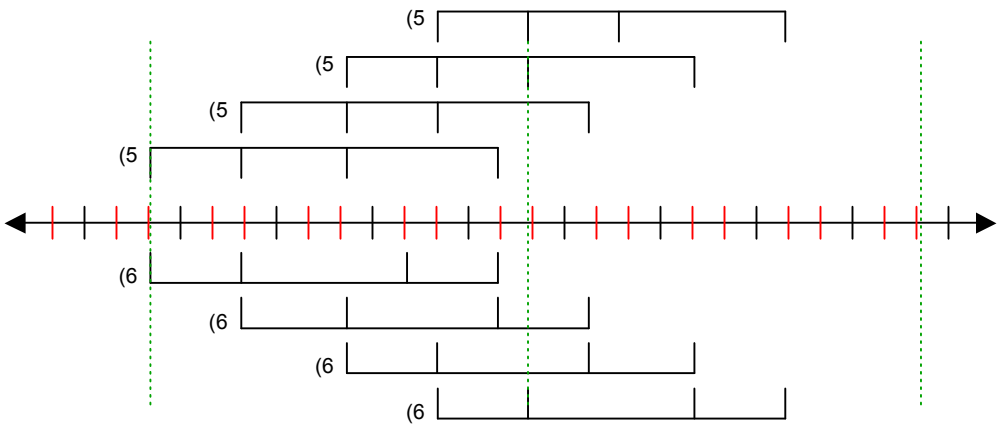
Figure 2-5.



The V chord in this progression ($G13^{b9}$) uses voicing 5, which is not found in either of the diatonic scales used so far. It is found in a symmetrical scale known among jazz players as the diminished scale (or 'octatonic' in other circles), a symmetrical scale built with alternating whole tones and semitones. One of its characteristics is that it divides the octave into four equal parts, and remains identical at intervals of a minor 3rd. Voicings 5 and 6 are sourced from this scale, as seen below in Figure 2-6 (scale pitches indicated in red). The vertical dotted green lines indicate the octave and the voicings can be seen to duplicate themselves every 3 semitones.

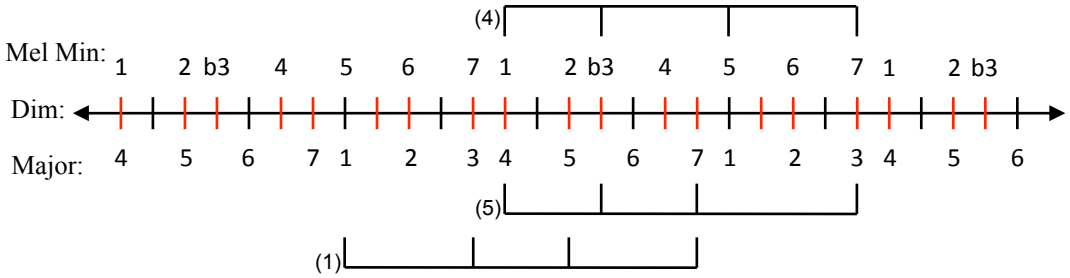
Figure 2-6.

Diminished scale:



To clarify, Figure 2-7 shows the juxtaposition of all three scales where the voicing pitch level is easily seen.

Figure 2-7.



In order to bring voicings 3 and 6 into this picture one can move the voicing pitch level up a minor 3rd to the location of voicing 3 in melodic minor (on the $^{b}3$, as pictured in Figure 2-4), making the ii chord in the ii - V - I progression a Dmin9$^{b5(11)}$ chord (no 3rd). At the same pitch level can be found, sourced from the diminished scale, voicing 6, obtained by moving the same note (C to B, or the 7th of the ii chord to the 3rd of the V chord) as in the previous example (Figure 2-5). The V chord is now a G13^{b9}(no 7th). The progression is shown below in Figure 2-8 (in musical notation), and the source of the voicing shown graphically in Figure 2-9.

Figure 2-8.

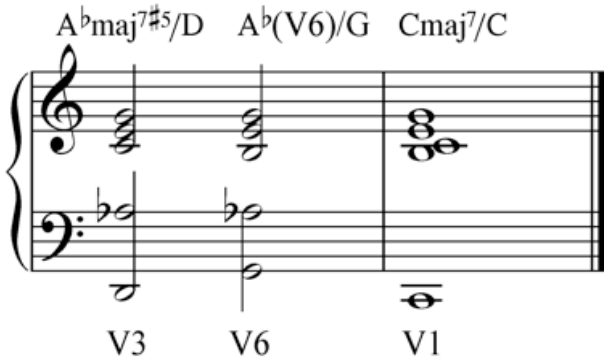
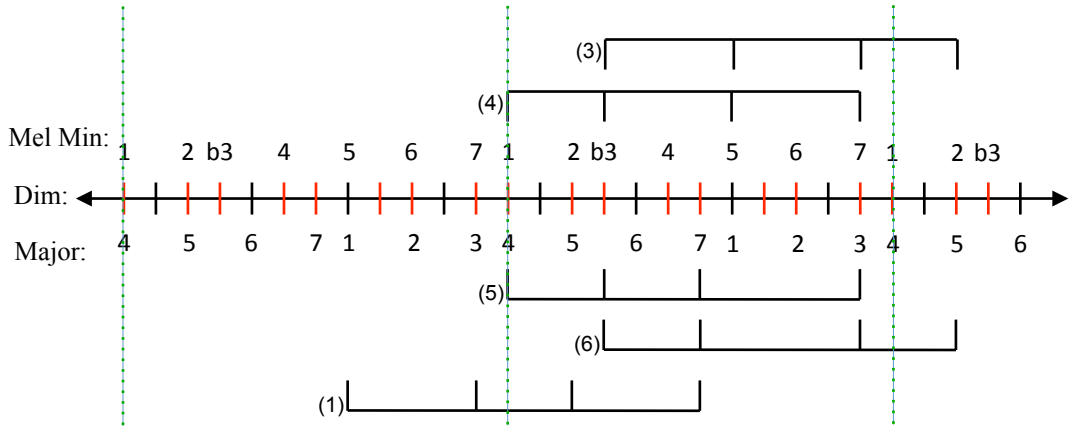


Figure 2-9.



The dotted green vertical lines in Figure 2-9 show the relationship between the diatonic key reference point (major scale) and the relative pitch level of the 'borrowing scales' (melodic minor and diminished). In this case, the melodic minor is referenced at the level of the fourth degree of the major scale (the diatonic reference point as the tonic of the ii - V - I progression). It has been shown in Figure 2-8 that a 'functionally equivalent' progression can be built using voicings constructed from a point a minor 3rd above the original level in the diatonic system (the fourth degree of the major scale, as shown in Figures 2-3, and 2-5).

If one considers voicing 2 as located at the same level as voicing 3 in melodic minor (as indicated back in Figure 2-2b), and use it in the same manner as the progression in Figure 2-8 (by dropping the 7th of the ii chord to the 3rd of the V chord), another realization of the progression is obtained at the same voicing pitch level as the one in Figure 2-8 (seen in Figure 2-10 and graphically represented in Figure 2-11).

Figure 2-10.

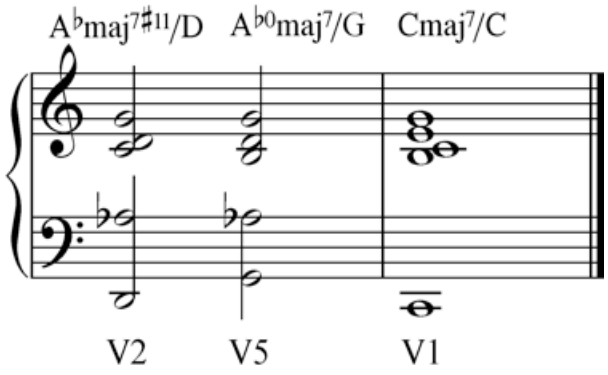
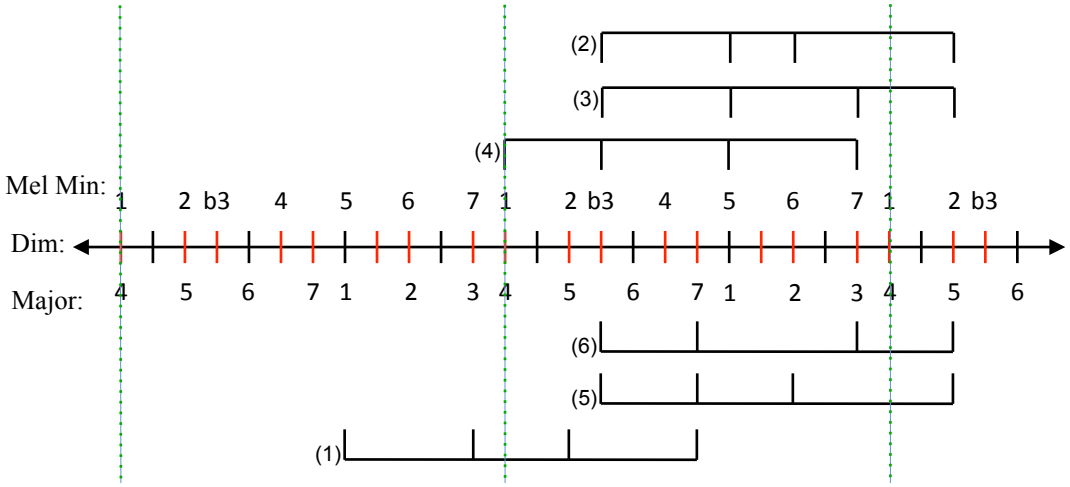


Figure 2-11.



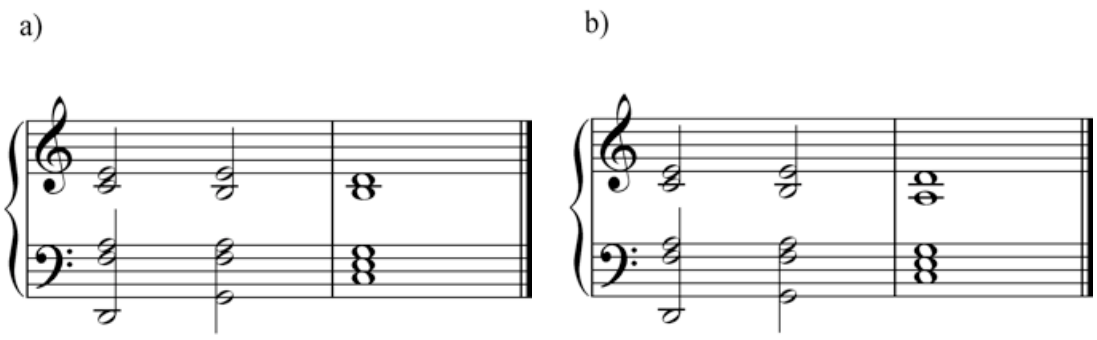
Although this expression of the ii - V progression is not as colourful as the one in Figure 2-8 (with the use of the D, the root of the ii chord, becoming the 5th of the V chord, instead of E, the 9th of the ii chord, becoming the 13th of the V chord), it is still perfectly functional as a ii - V - I progression. The important thing to retain through this process is the idea of 'functionality'.

The Voicing as Background

At this point, it is necessary to deal with the I chord and the idea that the 'voicing' (as defined here) need not be stated literally. The actual expression of the chord voicing can be varied in several ways in order to satisfy one's desire for variety, added colour, and voice leading. The simple progression in Figure 2-3 shows a movement from the V chord to the I chord that is not necessarily the most satisfying in terms of voice leading. The Cmaj7 voicing above the C bass note renders the note 'C' in the voicing redundant.

In Figure 2-12 below, example 'a' shows the addition of the 9th to the I chord, yet one can still see the intact Cmaj7 voicing in the lower four voices. In example 'b', the 7th has been replaced by the 6th, and although there is no literal statement of the Cmaj7 voicing per se, the fundamental pitch collection can still be construed to be C major (as expressible by the voicing of Cmaj7). This idea of the replacement of the 7th with the 6th, as well as that of using different actual 'voicings' (as in voicings 1 through 6) for the I chord, will be examined later.

Figure 2-12.

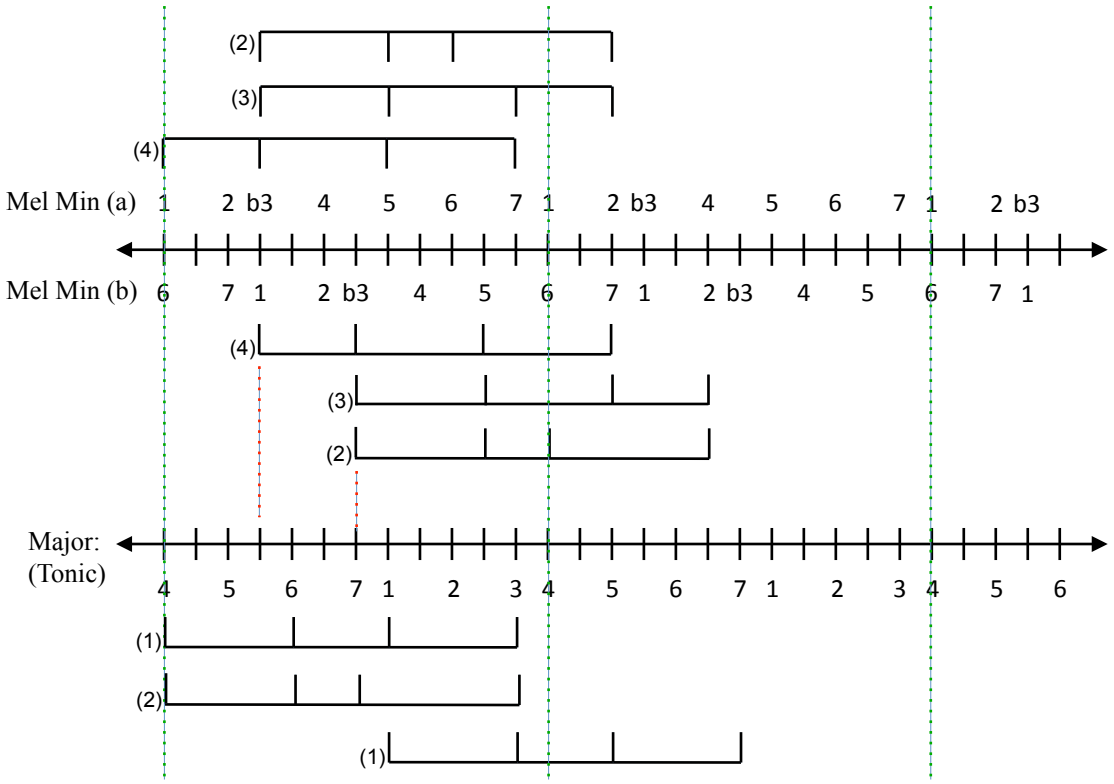


Borrowing from Two Melodic Minor Scales

Up until now, the strategy for moving from the ii chord to the V chord has been one of voice leading (specifically the movement of the 7^{th} of the ii chord down a semitone to the 3^{rd} of the V chord, and keeping everything else as it was). The result is that the ii chord in each of the progressions constructed so far has been sourced from melodic minor, and that the V chord has been sourced from the diminished scale (with the exception of the very first one in Figure 2-3, sourced solely from the major scale).

If the level of the source melodic minor (from which the voicings for the ii and V chords are borrowed) is raised to the level of the $^{b}6$ of the major scale tonic system (up a minor 3^{rd} from previous), it can be shown that a voicing at the level of the maj 7^{th} (of the tonic major scale) is now available, as seen in Figure 2-13.

Figure 2-13.



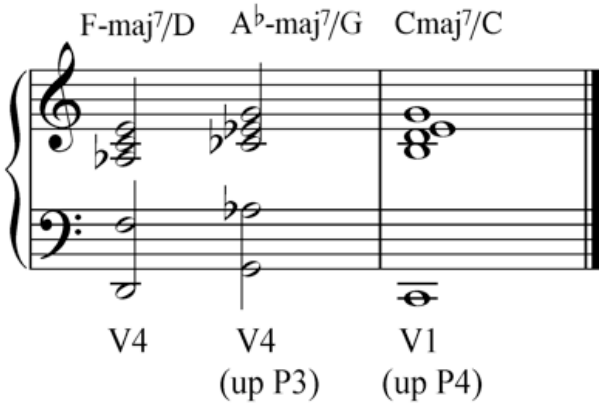
From this figure one can see the advancement of sourcing levels for useable voicings in a ii - V - I progression in relation to the diatonic reference point of the major scale (bottom line). The vertical dotted green line farthest to the left indicates the original voicing pitch level at the fourth degree of the tonic major scale. Voicings 1 and 2 (below major scale line) represent the original ii - V shown in Figure 2-3. Voicing 4 at the same pitch level (from melodic minor 'a') represents the ii chord in the progression shown in Figure 2-5.

Moving to the pitch level of the first vertical dotted red line (three semitones to the right), voicings 2 and 3 from melodic minor 'a' correspond to the ii chords in the progressions illustrated in Figures 2-8 and 2-10 respectively. Voicing 4 from melodic minor 'b' is one that has not come up here at this pitch level so far. This leads to another strategy for construction of the ii - V - I progression.

Instead of the methodology that we has been used up to this point (that of sourcing the ii chord from melodic minor, and lowering the 7^{th} of the ii chord to the 3^{rd} of the V chord, leaving the other notes of the voicing where they were, to produce a V chord voicing sourced from the diminished scale), one can also build a functionally equivalent progression using a voicing from one melodic minor scale source for the ii chord, and another melodic minor scale source for the V chord.

Using Figure 2-13 as a reference, if voicing 4 is obtained from melodic minor scale 'a' (built on the fourth degree of the diatonic reference point of the major scale at bottom) to form the ii chord ($Dmin9^{b5}$), and voicing 4 from melodic minor scale 'b' (built a minor 3^{rd} up from melodic minor 'a', on the flat sixth degree of the diatonic reference point of C major) to form the V chord ($G7^{b9b13}$), then the result is the following progression (as seen in Figure 2-14).

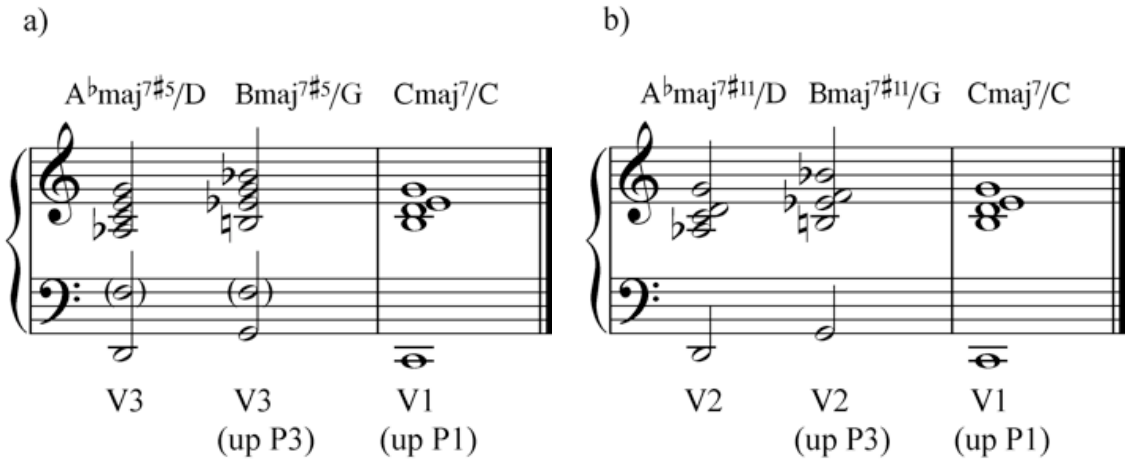
Figure 2-14.[16]



In a similar manner (still using Figure 2-13 as a reference), voicing 3 as sourced from melodic minor 'a', and voicing 3 as sourced from melodic minor 'b' (to produce ii and V chords respectively) can be used to produce another functionally equivalent statement of the ii - V - I as seen below in Figure 2-15a. The notes in brackets (F natural) are there to provide stability to the V chord due to the fact that this voicing omits the 7th. Also, in exactly the same manner, voicing 3 can be replaced with voicing 2 (due to its equivalence at the same pitch level in the same scale as seen in Figure 2-13) in both the ii and V chords to yield the progression in Figure 2-15b.

[16] Note here that, along with the 'voicing' numbers indicated below the staff, an indication of pitch level change is introduced, showing the number of semitones up or down that the voicing level has changed.

Figure 2-15.



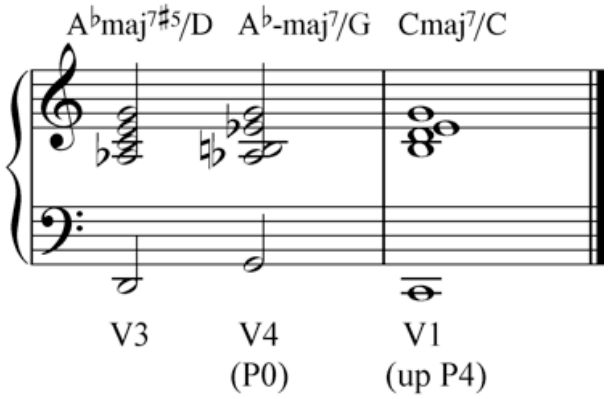
These 'parallel movements' of the voicing up a minor 3rd from the ii to the V chord show fairly clearly the relationship that is emerging of the functional equivalence of the voicing at this interval of a minor 3rd. However, a few different ideas now present themselves.

A Few Points on Voice Leading and Parallel Voicing Movement

The first is something that has been observed here since the earliest of examples of the ii - V - I progression; voice leading. It may not seem apparent that these parallel examples shown in Figures 2-14 and 2-15 adhere to any consideration of voice leading. But, upon closer examination from another angle, it can be shown that something interesting is taking place behind the scenes.

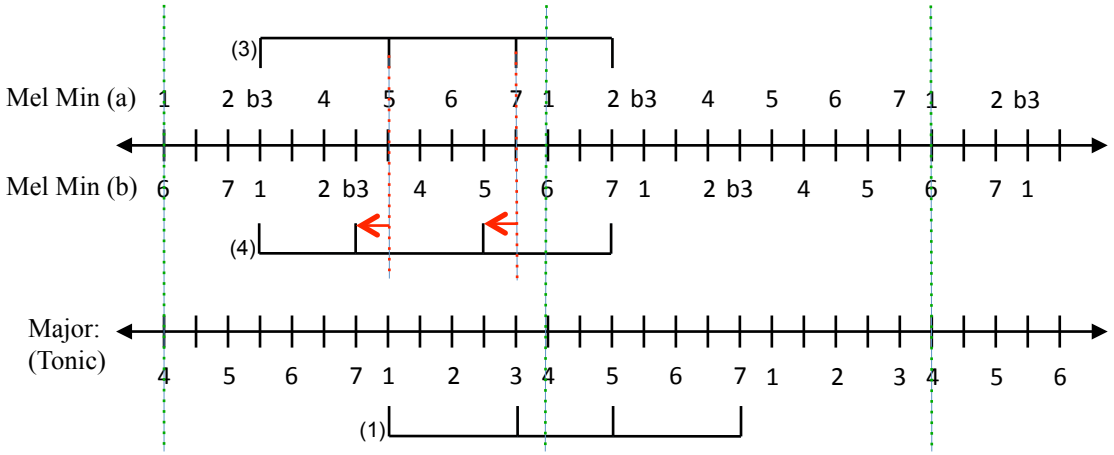
Taking the ii chord from Figure 2-15a, and the V chord from Figure 2-14, another statement of the ii - V - I can be constructed as shown in Figure 2-16.

Figure 2-16.



By voicing the ii and the V chords at the same pitch level, one can see easily the voice leading that takes place between them. It has been shown previously (Figures 2-5, 2-8, and 2-10) where one of the inner pitches of the voicing is moved by a semitone to arrive at the new voicing. In Figure 2-16, both inner voices are moved down by a semitone to arrive at the voicing for the V chord. Graphically, this can be seen in Figure 2-17.

Figure 2-17.



This same situation of the downward motion in both the inner pitches of the voicing can be seen in the following functionally equivalent progression, this time using voicing 1 sourced from the fourth degree of the major scale (the tonic major scale of the diatonic reference) as the voicing of the ii chord (Dmin9), followed by voicing 5 (at the same pitch level) from the diminished scale as the voicing of the V chord ($G13^{b9}$). This is represented in musical notation in Figure 2-18, and graphically in Figure 2-19.

Figure 2-18.

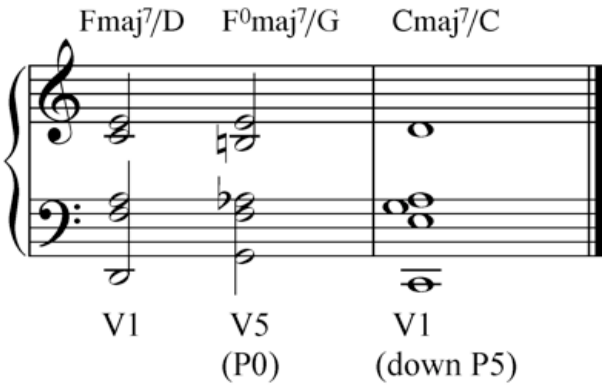
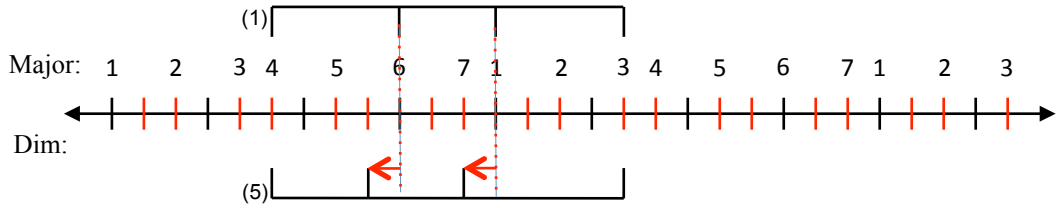


Figure 2-19.



Something similar can be seen in the progression seen in Figure 2-20, except that the two inner pitches of the voicing move outward in opposite directions instead of downward in the same direction. Using Figure 2-13 as a guide once more, voicing 2 is taken from melodic minor 'a' to produce the ii chord (Dmin11^{b5}), and voicing 4 is taken from melodic minor 'b' to produce the V chord (G7^{b9b13}). This is graphically represented in Figure 2-21.

Figure 2-20.

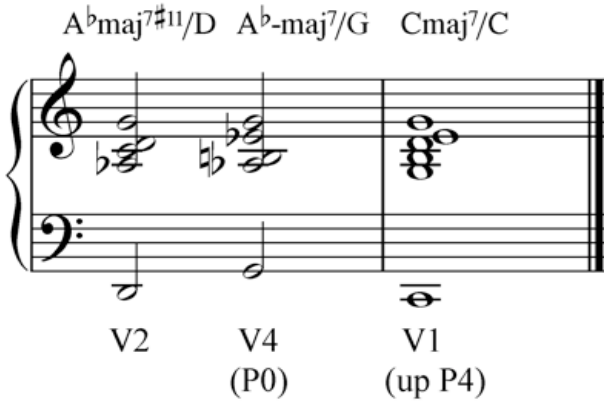
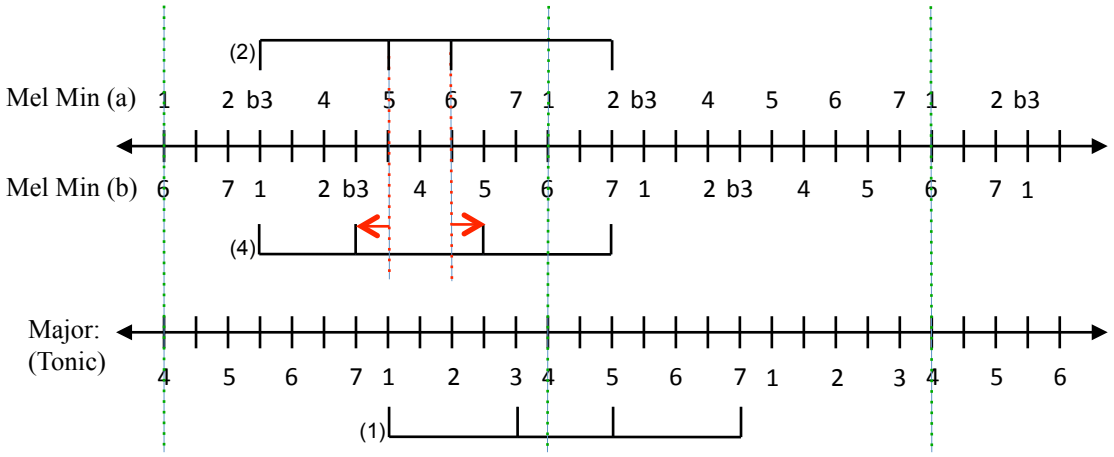


Figure 2-21.



Just as when both inner voices were moving down by step (Figures 2-16/17), this situation of both inner voices moving outwards in opposite directions can also be moved down three semitones to the fourth degree of the tonic reference point (C major), as was done in the progression shown in Figures 2-18 and 2-19.

The progression in Figure 2-22 is such an example. Voicing 1 from the fourth degree of the tonic major scale (C major) is used to produce the ii chord (Dmin9) as in Figure 18, except now the two inner pitches of the voicing move outward in opposite directions to produce voicing 6 above the bass note G to yield the V chord ($G13^{b9\#11}$). This is also graphically represented in Figure 2-23.

Figure 2-22.

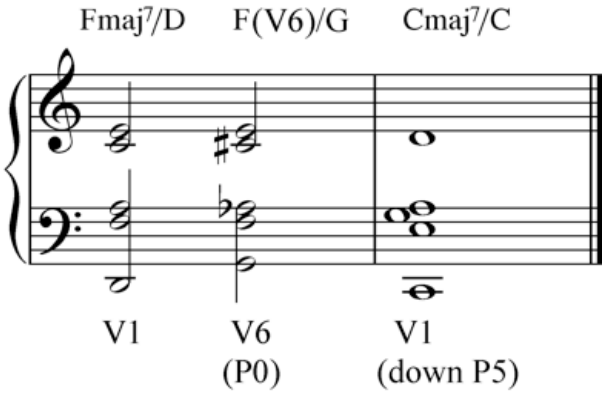
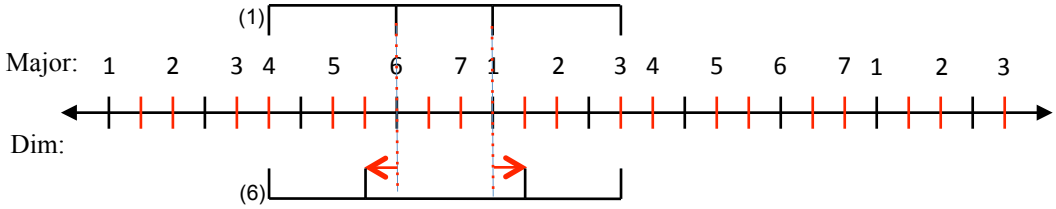


Figure 2-23.



In these last several examples (Figures 2-16 to 2-23), the voicings themselves can be shown to contain the voice leading, and more specifically, the voice leading occurs in the inner two pitches of the voicing. The outer pitches are left undisturbed. This is important because it is the stability of these outer pitches that allows us to look at the voicing as a *thing* that can be measured and observed.

Functional Equivalence from Diatonicism Towards Chromaticism

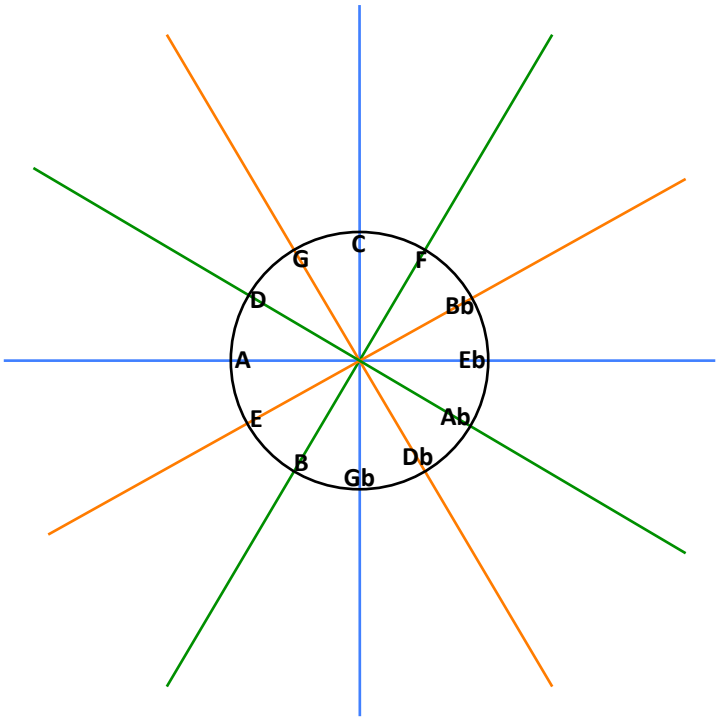
Something else that is becoming apparent here is that there is a great variety of chromaticism that is contained in a fairly large number of functionally equivalent ii - V - I progressions in one diatonic system. Up to this point, in the diatonic system of C major (using only a ii – V – I progression), voicings 1, 2, 4, 5 and 6 have been utilized at the fourth degree (F), voicings 2, 3, 4, 5 and 6 at the flat sixth degree level (Ab), and voicings 2 and 3 so far at the seventh degree level (B). Can the idea of 'functional equivalence' be extended beyond the diatonic level?

If the diatonic framework of C major is dispensed with altogether, the world becomes a complicated place very quickly if one doesn't have some comprehensive way of keeping track of things. The number line graphic used up to now is quickly becoming unwieldy.

In his book *Bela Bartok: An Analysis of his Music*, Erno Lendvai puts forth a concept of tonal organization called 'The Axis System' which is useful in organizing some of the material shown here in this document.[17] Lendvai proposes (and goes into some detail backing up) that the circle of fifths can be shown to break down into three perpendicular axes of 'functional equivalence'. A reference diagram useful in the discussion of this concept is shown in Figure 2-24.

[17] Erno Lendvai, "Tonal Principles: The Axis System," in *Bela Bartok: An Analysis of his Music,* (London: Kahn and Averill, 2009), 1-17.

Figure 2-24.



Lendvai poses that if we take ‘C’ to be the tonic of a diatonic system, and if ‘F’ and ‘G’ are its subdominant and dominant functions respectively, then other points on the same perpendicular axes would function in the same way. For example, anyone with some experience in functional progression can see that if the green axis in Figure 2-24 is subdominant, and the orange axis is dominant, then the progression of F to G to C is clearly IV - V - I in C. Similarly, D to G to C could be construed as ii - V - I (Dmin - G7 - C), or Ab to G to C as ^{b}VI - V - I, and so on. All of these progressions are functionally equivalent in the key of C.

The combinations are many, but the point is that the green/orange/blue relationships in Figure 2-24 correspond to subdominant/dominant/tonic relationships

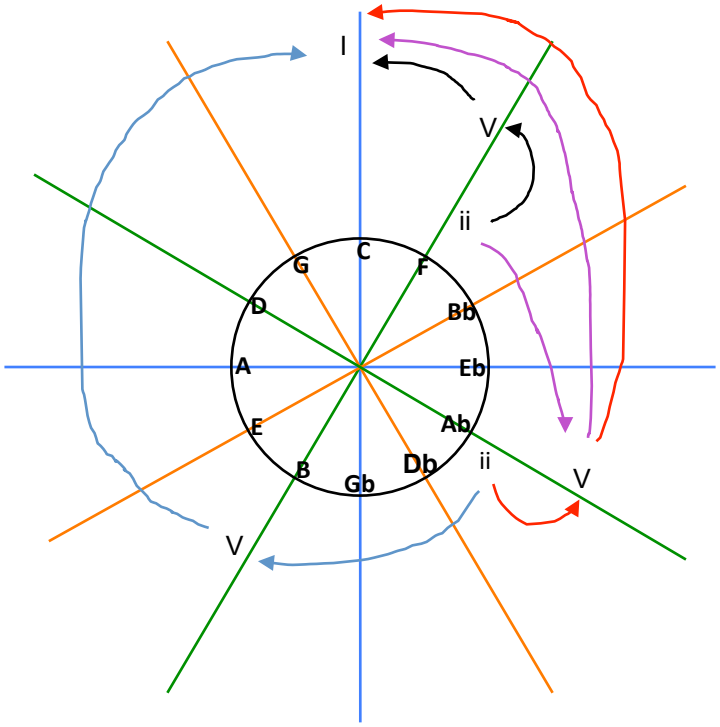
across all keys (if one rotates the entire wheel one notch to the left or right so that green or orange occupies the vertical-horizontal space of 'tonic'). The letters on this wheel, in the manner that Lendvai proposes, correspond to roots of chords, and therefore root movement.

What this author is proposing (and this is the main thrust of this entire document) is for the letters on this wheel to be seen as four-note voicings, specifically the six voicings described in this document. In order to do this, one must separate the root movement from the voicing, or at least look at the root as a separate entity from the functionality of the progression. One must also somehow show that there is real equivalence among any and all of the six voicings at any of the pitch levels (letter names) indicated around the wheel of the diagram in Figure 2-24.

Getting back to the ii - V - I progressions from earlier, functional equivalence is exactly what has been shown. All of the eleven different progressions laid out in this document so far are variations on a subdominant to dominant to tonic function, or 'green to orange to blue' on the axis wheel diagram in Figure 2-24. All go from a D chord to a G chord to a C chord (clockwise by step in the upper-left quadrant). But if voicing levels are plotted on the wheel, something interesting happens.

The diagram in Figure 2-25 shows the voicing pitch levels for all of the progressions shown earlier. The pathway shown in black corresponds to the progressions seen in Figures 2-3, 2-5, 2-18, and 2-22. The pathway in red shows the progressions found in Figures 2-8, 2-10, 2-16 and 2-20. The purple shows the progression in Figure 2-14, and the light blue shows the progressions in Figure 2-15 (a and b).

Figure 2-25.

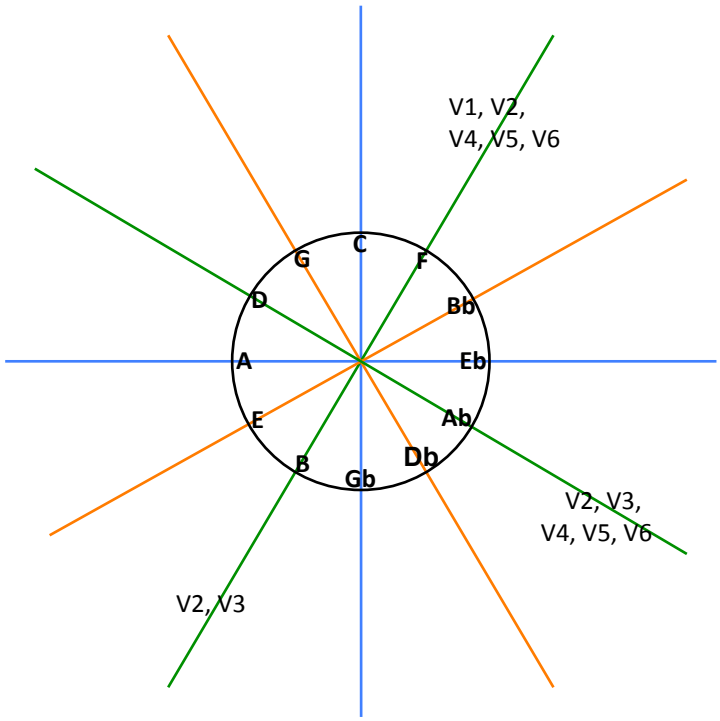


Whereas Lendvai poses that the green axis and orange axis respectively represent the subdominant and dominant functions in a tonic system represented by the blue axis (in this case C), the situation changes in a fairly fundamental way when the voicing pitch level is plotted on this wheel. The ii chord (subdominant) and the V chord (dominant) meld into one another and become indistinguishable on a voicing level. In each of the scenarios represented in Figure 2-25, the voicings for the ii chord and V chord move from green to green, sometimes staying at the same pitch level (as in the pathways shown in black and in red), and sometimes moving from one pole (as Lendvai calls it) to another (as in the pathways shown in light blue and purple).

The lack of differentiation between subdominant and dominant poses an interesting question as to the significance of some very long-established practices and principles in tonal music. This is an issue to which this paper will return. Right now the extension of the idea of 'functional equivalence' beyond the key of C takes precedence.

When the voicings used to express the various functionally equivalent ii - V - I progressions in C were last being examined, an inventory of voicings was beginning to build up on three different pitch levels. Using this new, more comprehensive graphic system, the situation looks something like Figure 2-26.

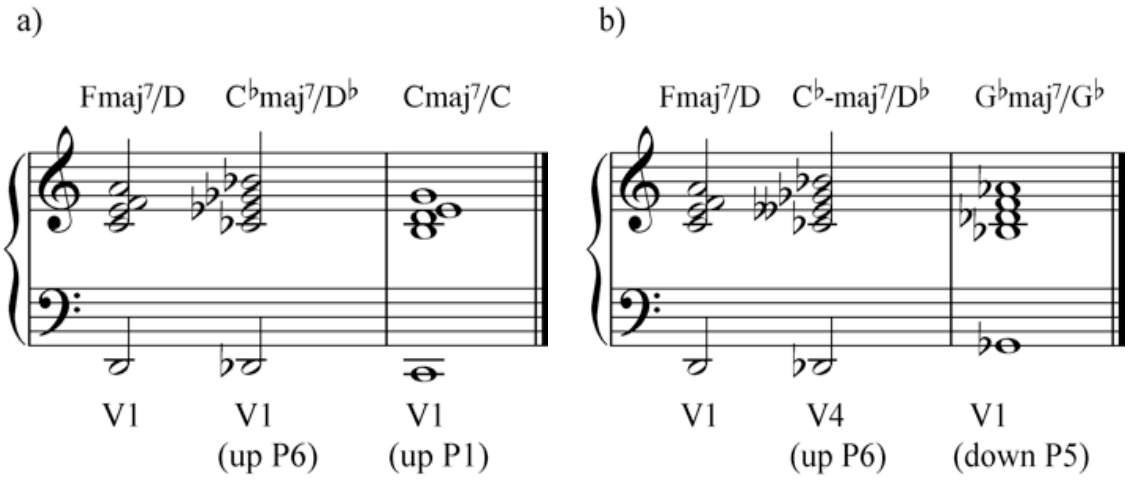
Figure 2-26.



If the idea is to prove functional equivalence of all six voicings on all four poles of the green axis, then one can't help but wonder (when looking at Figure 2-26) about the fact that at pitch level 'B' there are only two of the six voicings, not to mention that at pitch level 'D' there are none at all. Upon examination, two of the four missing voicings at pitch level 'B' contain the note F# (V1 and V4), which negates the functionality of G7 in the diatonic system of C.

However, if the bass note is changed to D^{b}, there is no such problem. As the progression in Figure 2-27a shows, one can just carry on right through to C major, or replace the tonic of C major with another functionally equivalent one from the blue axis (in this case, G^{b} major, from the opposite pole of C) as shown in Figure 2-27b.

Figure 2-27



Also with voicings 5 and 6, at the pitch level of 'B' (or C^{b}), if one remains in the diatonic system of C, voicing 5 or voicing 6 (placed over the bass note G) produce two very similarly constructed G7 chords using the #9. Although they lack the colour of

some of the other voicing choices, containing really just the functional notes 3rd, 5th, 7th (or root in the case of voicing 6) in addition to the #9, they are indeed functional. However, if used over the bass note E in the diatonic system of A major or minor (Figure 2-28c and d), or over the bass note D^b in the diatonic system of G^b major or minor (Figure 2-28 e and f), one begins to see more of the tangled web of overlap between axis-equivalent diatonic systems.

Figure 2-28.

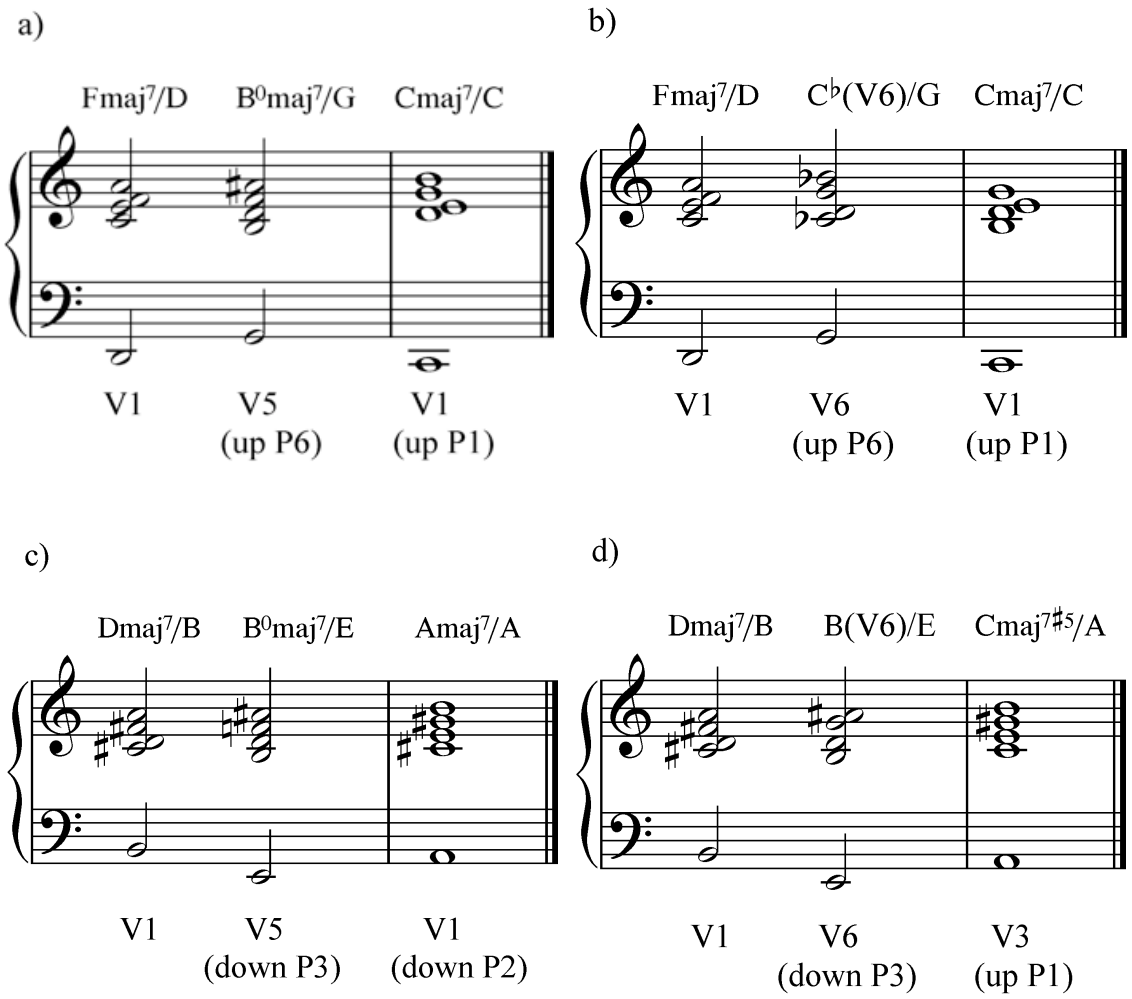
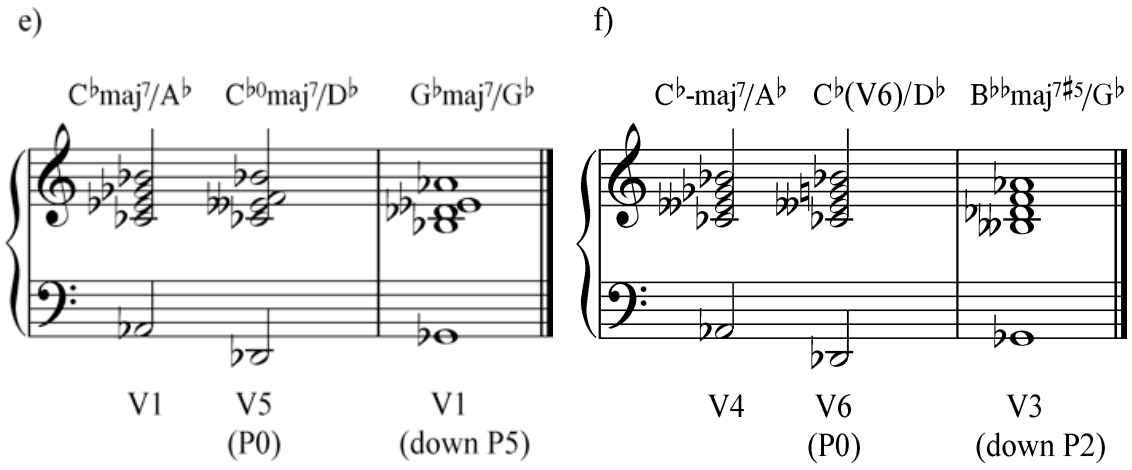


Figure 2-28 (cont'd)



There are a few things revealed as one moves through the progressions found in Figure 2-28:

1. - All six voicings have been used at pitch level 'B' (or C^b).

2. - Voicings have appeared on voicing level 'D' (on the ii chords in Figure 2-28 c and d).

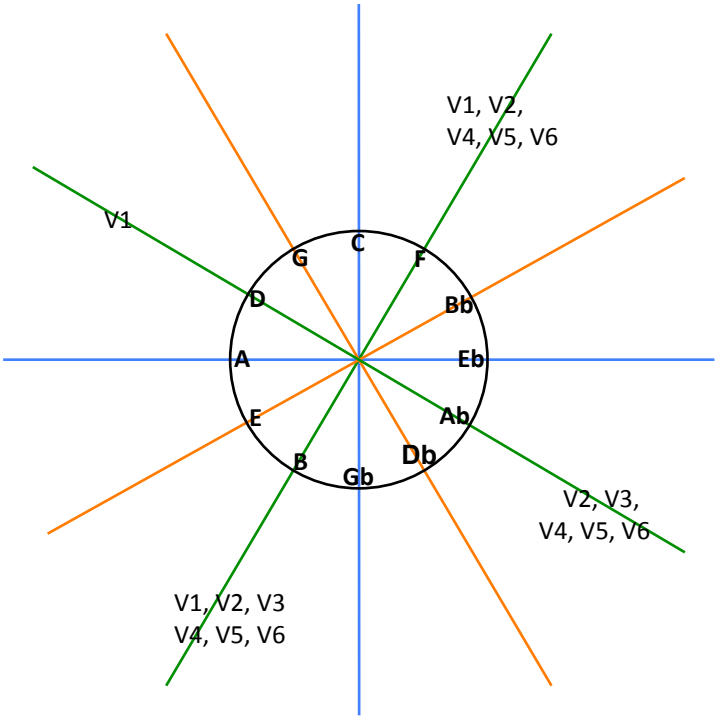
3. - The diatonic system, which was originally that of C major, has now expanded to include those of G^b and A (both major and minor).

4. - One sees the appearance of a voicing on the I chord that differs from the root of the tonic, namely that of the minor chord, whose voicing is built on the minor 3rd above the root. This is an important step towards showing functional equivalence of all six voicings on the tonic axis.

On points 1 and 2 above, it has been shown to a sufficient degree now that all six voicings on each of the poles of the green axis in Lendvai's system are functionally

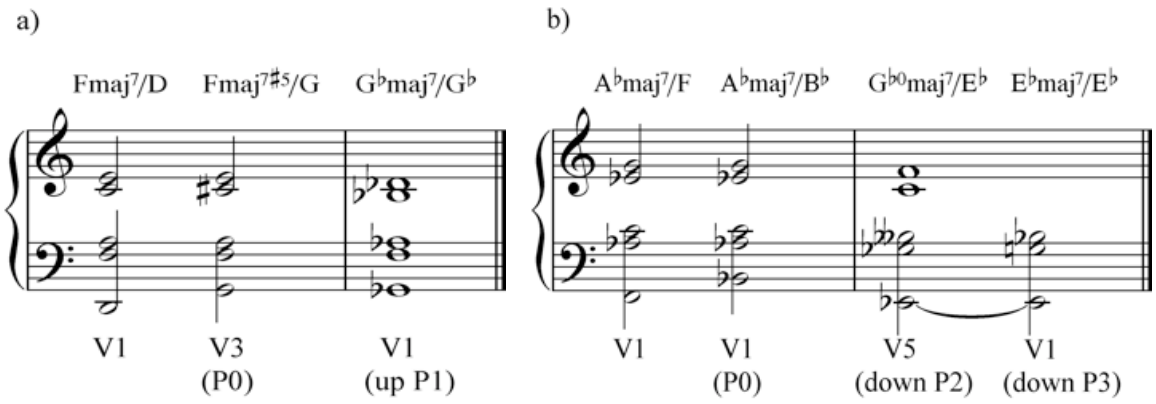
equivalent, at least in the context of a tonic system that corresponds to the blue axis in Figure 2-26. Referring to Figure 2-26, if one can now add the remaining four voicings to pitch level B in the lower left quadrant, and also voicing 1 to pitch level D in the upper left quadrant, then we now have an inventory of voicings on the green axis displayed in Figure 2-29.

Figure 2-29.



The missing voicing 3 at pitch level F can be shown to adhere to this plan in the progression shown in Figure 2-30a. Also, the missing voicing 1 at pitch level Ab is easily shown in Figure 2-30b.

Figure 2-30



From the point of having all six voicings available on three of the four poles of the green axis, all having the same function with regard to an 'expanded' concept of tonic (the blue axis), we can safely extrapolate to put the remaining voicings at pitch level D to achieve full voicing equivalence on the green axis. Again, all one needs to do is rotate the Lendvai wheel 90º in either direction. All the relationships are the same.

The next step in this process is to show that all of the six voicings of the blue axis are functionally equivalent.

Functional Equivalence of All Six Voicings on the Tonic Axis

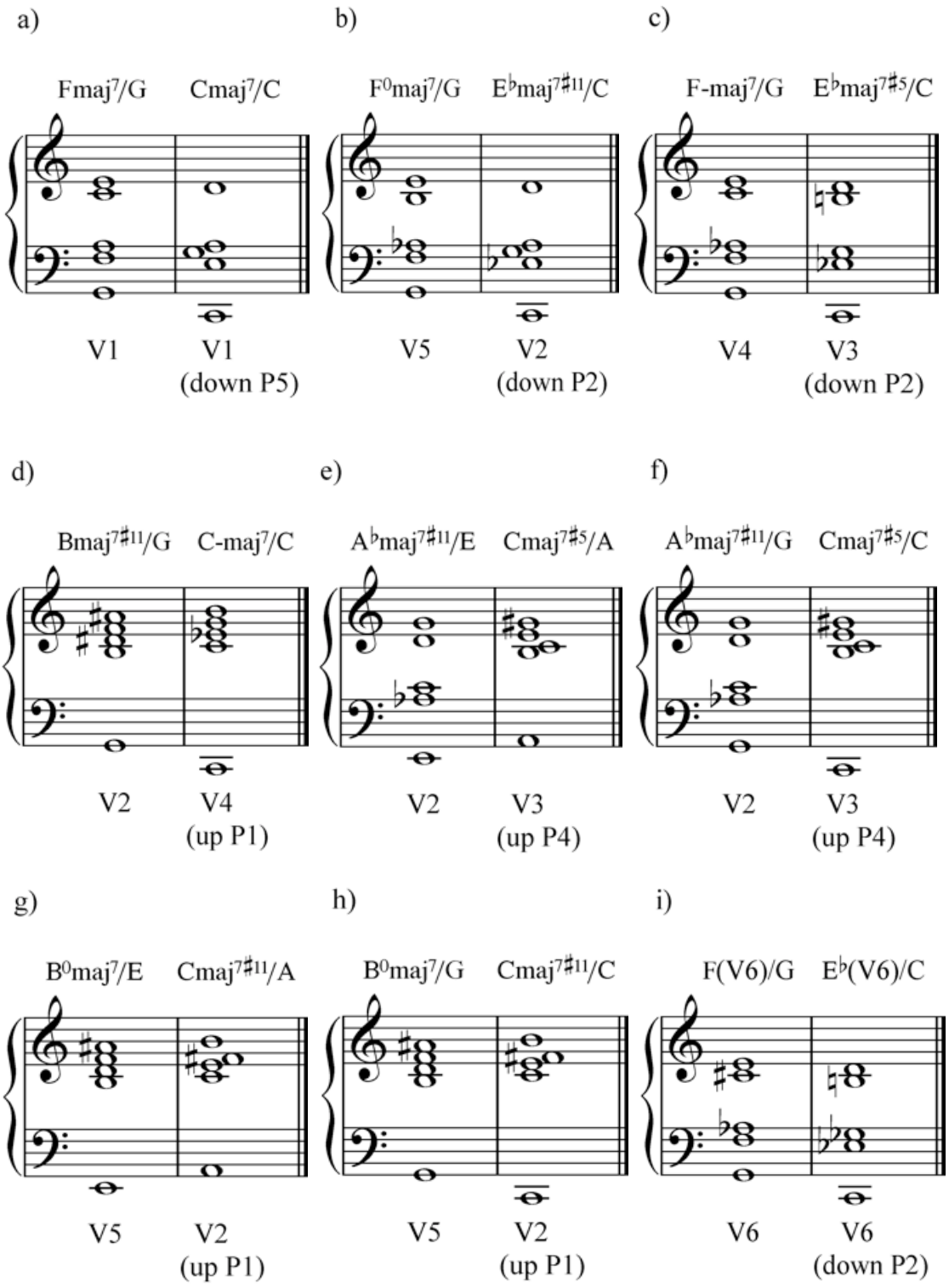
All progressions shown before Figure 2-28 have been concentrating on the ii and V chords in an admittedly simple situation of ii -V - I progressions. However, 'simple is good' when trying to get a point across. The tonic chords have all been major 7th chords

where the pitch level of the voicing is identical to the bass note (Cmaj7/C, G^{b}maj7/G^{b}, etc.).

In Figure 2-28 ‘d’ and ‘f’ the first instance of a tonic chord is found where the bass note is not that of the pitch level of the voicing. This is also noted in point 4 below Figure 2-28.

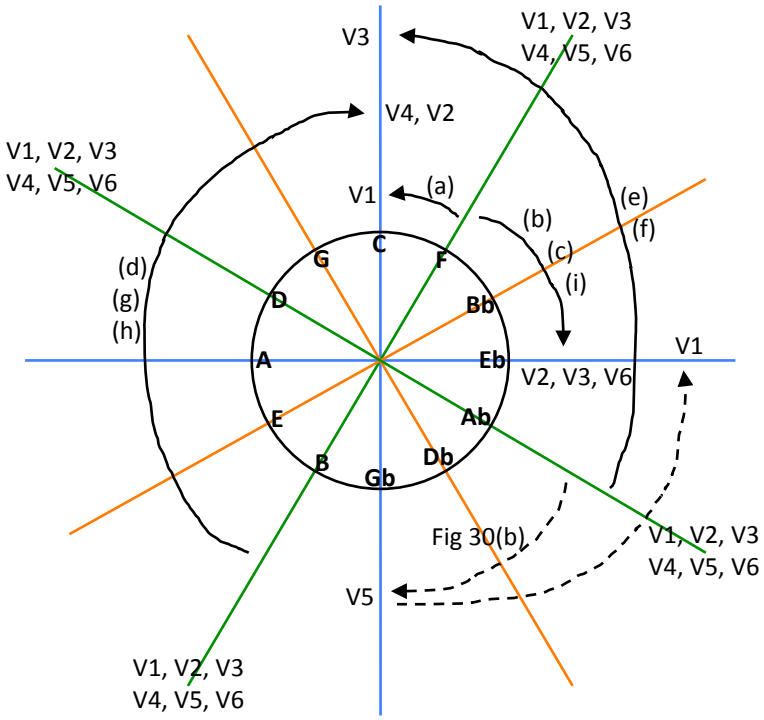
The minor tonic chord uses voicings which are based on either the root, or the $^{b}3$ of the melodic minor scale, specifically voicing 4 on the root of the scale, or voicings 2 or 3 on the 3rd degree of the scale (see Figure 2-2b). So in the context of the blue axis as tonic, taking into account both major and minor tonalities, the following progressions below in Figure 2-31 are functional ones. Note that these are all V - I (or i) progressions, due to the fact that all progressions from the ii to the V have been previously shown to be contained within the same axis (in this case, the green axis).

Figure 2-31


a)
Fmaj7/G
Cmaj7/C
V1
V1
(down P5)
b)
F0maj7/G
E♭maj7♯11/C
V5
V2
(down P2)
c)
F-maj7/G
E♭maj7♯5/C
V4
V3
(down P2)
d)
Bmaj7♯11/G
C-maj7/C
V2
V4
(up P1)
e)
A♭maj7♯11/E
Cmaj7♯5/A
V2
V3
(up P4)
f)
A♭maj7♯11/G
Cmaj7♯5/C
V2
V3
(up P4)
g)
B0maj7/E
Cmaj7♯11/A
V5
V2
(up P1)
h)
B0maj7/G
Cmaj7♯11/C
V5
V2
(up P1)
i)
F(V6)/G
E♭(V6)/C
V6
V6
(down P2)

Before discussing these progressions individually, the voicing level mapping of each of them on the axis wheel in Figure 2-32 may be useful in creating context, as well as providing an opportunity to get acquainted with the practical usage of this graphic format to which we will refer multiple times through the next several pages of this document.

Figure 2-32.



Taking each of these V - I (or V - i) progressions in Figure 2-31 individually, a picture of possible voicings representing the tonic chord begins to take shape.

(a) This is just a basic G13sus to $C^{6/9}$ cadence and can be seen on the graph labeled (a), with an arrow going from the green axis at pitch level 'F' to the blue axis at

pitch level 'C' one notch in the counter-clockwise direction. One interesting point to note here is that the Fmaj7 (V1), placed over the G bass note (producing a V13sus chord), and progressing straight to the C major chord, effectively eliminates the previously-shown step from sub-dominant to dominant (ii to V). The suspended 4^{th} chord on the dominant can be viewed as both sub-dominant and dominant mashed together.

(b) This shows the same pitch level for the voicing on G7 ('F', but V5, just for variety), but this time moving to pitch level 'E^{b} (V2) for the tonic chord, to produce $Cmin^{6/9}$. This movement is indicated by the arrow pointing from pitch level 'F' on the green axis to pitch level 'E^{b}' on the blue axis 2 notches in the clockwise direction.

c) Same as (b) with the exception of voicing types. V4 at pitch level 'F', producing another suspended chord ($G13sus^{b9}$) moving to V3, again at pitch level 'E^{b}', effectively showing the functional equivalence of V2 and V3 at the pitch level of 'E^{b}'.

(d) This progression brings pitch level 'B' into the picture with V2 at this level producing $G7^{\#9b13}$, and moving to V4 at pitch level 'C' producing C- maj7. This effectively shows functional equivalence of V4 and V1 at the tonic level. This is represented on the graph as the arrow moving from pitch level 'B' on the green axis (at seven o'clock on the wheel) to pitch level 'C' at the top of the blue axis 5 notches in the clockwise direction.

(e) Here we find the pitch level of 'A^{b}' (V2) brought into the picture on the V chord (on the green axis), this time using root movement in the key of A minor. The tonic chord uses V3 at pitch level 'C' on the blue axis, yielding the same construction of the tonic minor chord as that seen earlier in example (c), except that this progression is

now in A minor ($E7^{\#9b13}$ to $Amin9^{maj7}$). But the chord is still constructed with V3 at the pitch level of a minor 3rd above the root. The progression is shown on the graph as the arrow moving from pitch level 'A^{b}' (4 o' clock on the wheel) to pitch level 'C', or four notches in the counter-clockwise direction.

(f) On the voicing level, this progression is identical to the previous one in letter (e), with the exception that the root movement is now back to the key of C. Graphically it looks exactly like example (e), but now V3 at the level of the tonic is shown to be a fully functional expression of the tonic chord, and its relationship to the relative minor (A minor) is easily seen. The progression in chord symbols is $G7sus^{b9}$ to $Cmaj7^{\#5}$.

(g) This progression uses the same pitch level movement as example (d), and looks identical on the graph, although the actual voicings are different. Back to the key of A minor, the V chord uses V5 over the bass note E ($E7^{b9\#11}$) moving to V2 built on the 3rd degree of A minor yielding the tonic chord $Amin^{6/9}$. This is anatomically the same tonic chord found in example (b), except that we are now in A minor instead of C minor. This shows V2 to be a viable replacement for V3 built on the 3rd degree of the minor tonic chord on multiple branches of the tonic (blue) axis.

(h) Examples (g) and (h) have identical voicing structures, but the root movement in example (h) is now moved to the relative major (C). This contrasts the similarity (or identity) of one aspect of the dominant-tonic relationship between a major key and its relative minor in exactly the same way as was contrasted in examples (e) and (f). The main point in example (h) is that V2 is used at the pitch level of the tonic yielding a 'lydianized' tonic chord of $Cmaj7^{\#11}$. By comparing examples (g) and (h), one can see

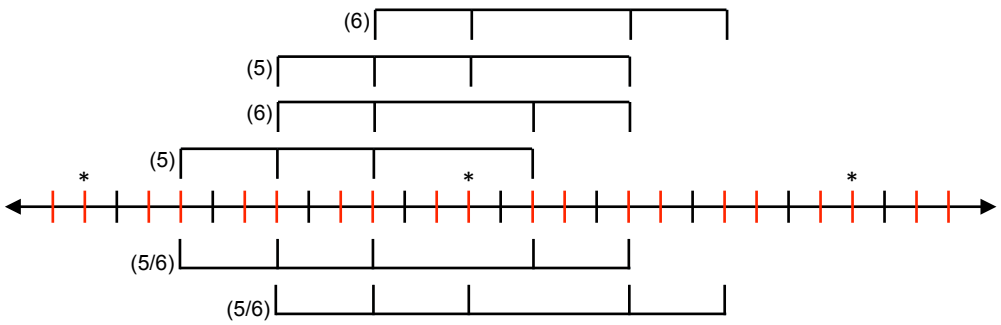
clearly that the tonic major 7th with a #11 is borrowed from the relative minor, as opposed to it being 'suddenly and miraculously made into a IV chord'.

(i) This example (combined with the progression in Figure 2-30b, shown on the graph as the dotted line in the lower right quadrant) effectively brings V6 (and V5 from Figure 2-30b) into the overall picture on the tonic (blue) axis. These two voicings, previously seen here only as part of a dominant-type structure, also adhere to this system as part of the tonic axis.

V5 and V6 on the Tonic Axis

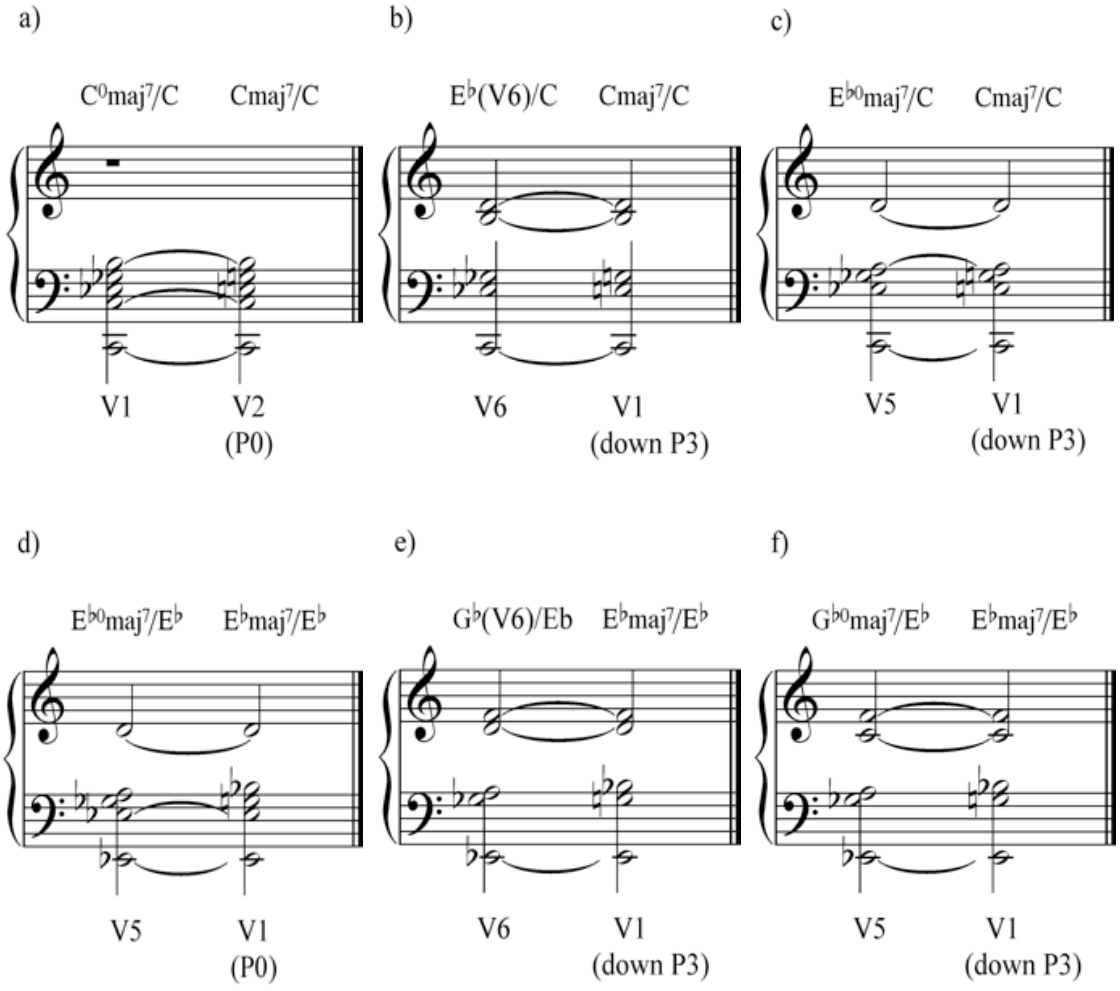
Voicings 5 and 6 are, in a sense, joined 'at the hip'. We have seen previously in Figures 2-5 and 2-9 that V5 on pitch level 'F', and V6 on pitch level 'A^b' (respectively) were functionally equivalent in the key of C as voicings for $G13^{b9}$. In the diagram of the diminished scale below (Figure 2-33), one can see that V5 and V6 are linkable at a distance of a minor 3rd (as is practically anything in the diminished scale) into a larger five-note structure.

Figure 2-33.



With the idea in mind that the voicing (specifically as discussed here) is merely a surface *symptom* of the underlying *scale/pitch collection/tonality/diatonic system*, voicings 5 and 6 can be said to be equivalent at a distance of a minor 3rd (specifically, V5 can be said to be basically the same as V6 a minor 3rd above it). In practical terms, the tonic diminished chord can be looked at as a delayed resolution of the I chord.[18] The following resolutions of tonic diminished to tonic major in Figure 2-34 show the idea.

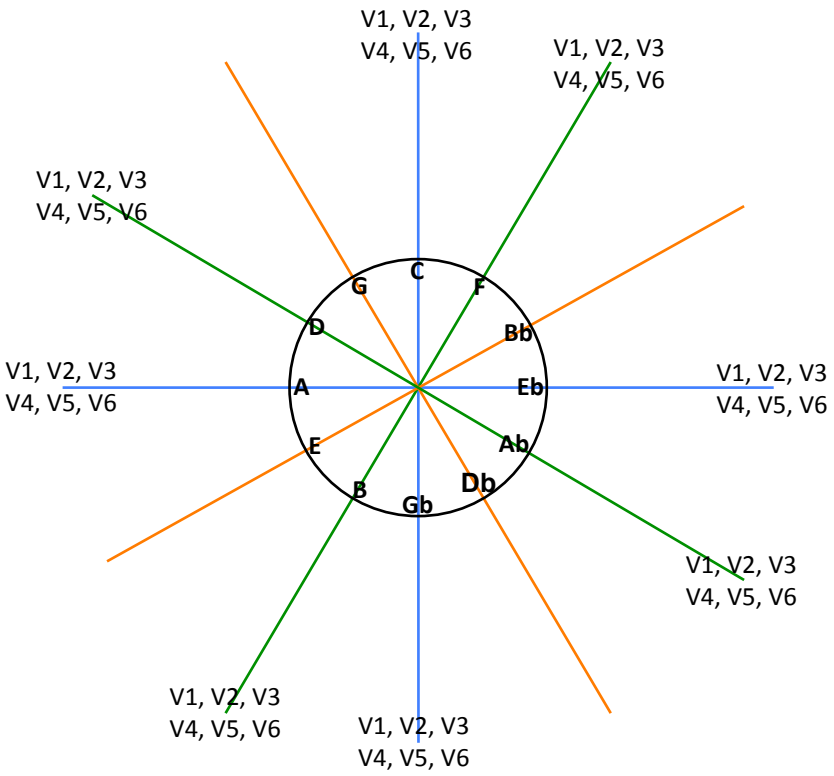
Figure 2-34.



[18] Proctor, "Technical Bases", 91-96

The principle laid out in Figure 2-34 can be extended out through all of the keys on the blue axis, so it can be said at this point that V5 and V6 are equivalent on all branches of the tonic axis (as indeed can be seen by the symmetry of the diminished scale at the interval of a minor 3rd). This fact, combined with the major/relative minor relationships among voicings 1 through 4 shown in the progressions in Figure 2-32, allows the inventory of voicings to be expanded to the point where all six voicings are functionally equivalent on all four poles of the blue and green axes (as expressed in the graph shown in Figure 2-35).

Figure 2-35.

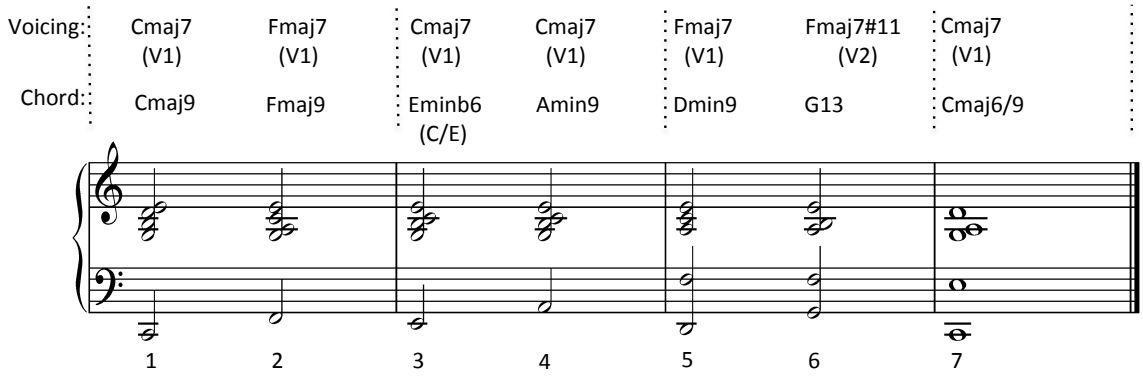


The Orange Axis

Thus far, none of the progressions presented have involved voicings taken from the orange axis. However, if the entire process had begun in the key of G (as opposed to C) then the wheel would have had orange where the where the blue axis had been for the duration of the discussion up to now. All of the relationships that have been discussed regarding the green and blue axes will exist between the blue and orange axes respectively, and will also exist between the orange and green axes.

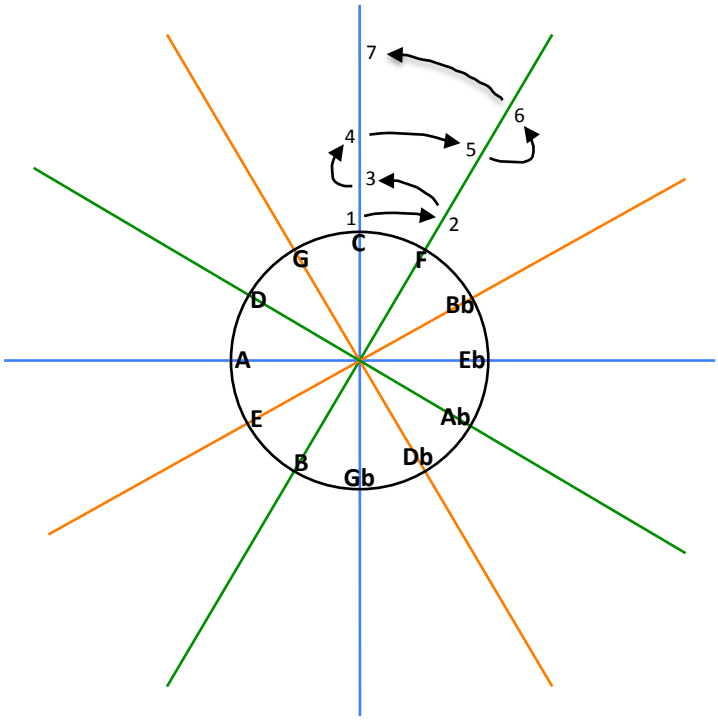
In a purely diatonic situation, say in C major, voicings built on the orange axis are completely absent. In the example given in Figure 2-36, the progression of 'I - IV - iii - vi - ii - V - I' in C major is shown. From our very particular voicing perspective, only the three voicings found in the C major scale are utilized: V1 on the tonic pitch level, and both V1 and V2 on the pitch level of the fourth degree (as appears back in Figure 2-2a).

Figure 2-36.



If the voicing levels of the chords above are plotted graphically on the axis wheel (Figure 2-37) using the numbers below the staff as location points, it becomes clear that only two adjoining poles of the entire system are utilized while travelling around the entire system.

Figure 2-37.

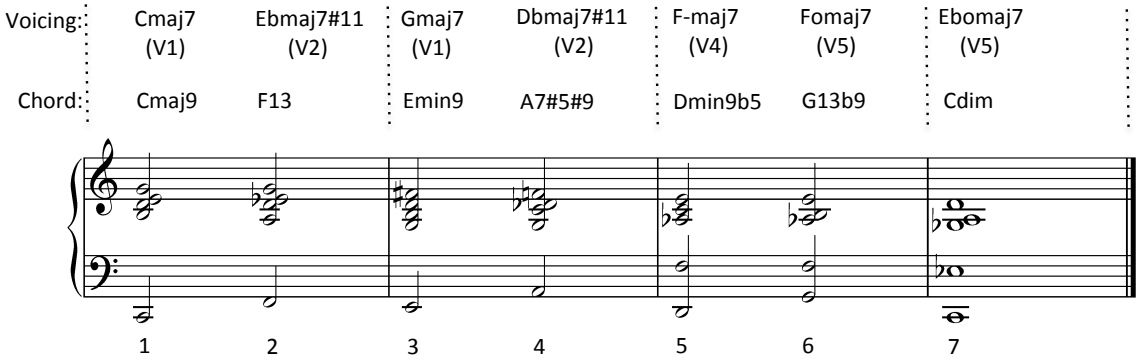


It can be seen in Figure 2-37, in the most simple of examples, that the negotiation of a pure diatonic system relies totally on the 'dance' between its tonic pole (in this case 'C') and the pole one notch away in the clockwise direction (in this case 'F'). Whether this has actually been done in a worthwhile musical manner in the last four hundred years is a subject for another discussion. However, the merging of the sub-dominant (points 2

and 5 of Figure 2-37) and the dominant (point 6) functions in terms of voicing level can clearly be seen here. They are indistinguishable from each other.

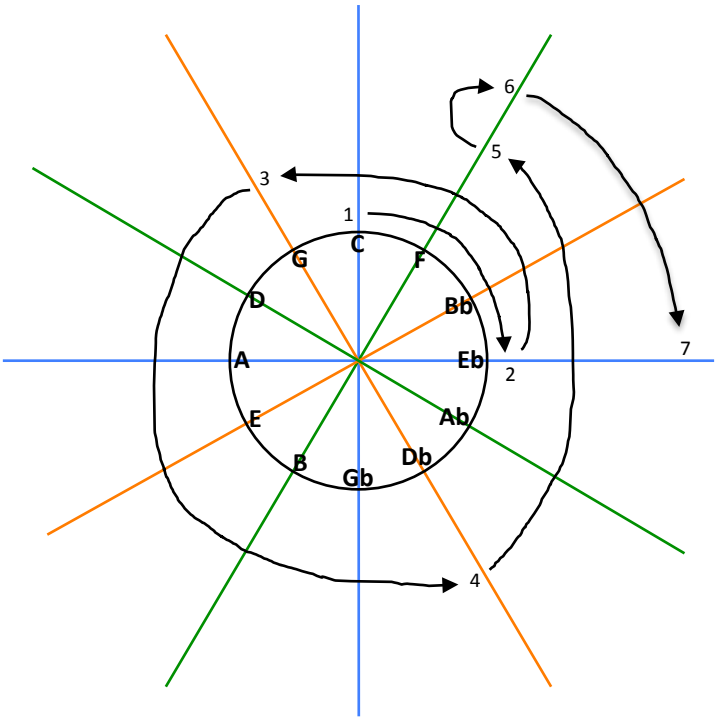
Still in the diatonic system of C major, but using more chromaticism, Figure 2-38 shows a slightly more elaborate iteration of the same progression found in Figure 2-36.

Figure 2-38.



If this progression is plotted on the axis wheel as before, one sees a comparatively more complex picture, as shown in Figure 2-39.

Figure 2-39.



The IV chord (labeled ‘2’), is now a dominant chord leading (as a tritone substitution chord) to the Emin9 immediately following. Whereas in the previous example (Figure 2-37) the movement from the I chord to the IV chord (‘1’ to ‘2’) was plotted as a movement from the blue axis to the adjoining green axis, here the IV chord is plotted at the pitch level of ‘Eb’ which is on the blue axis at a position of 90 degrees from the tonic ‘C’. We have seen earlier that, in a single diatonic system, the voicing levels of C and Eb (blue) can be seen as functionally equivalent relative to the tonic keys found on the orange axis (one notch to the left, or counter-clockwise). In this case the movement from voicing level C to that of Eb could be seen as a ‘blue-to-blue’ movement which

would be the functional equivalent of a ii-V to Emin on the orange axis (chord labeled '3') as represented here by the voicing level of 'G' (also orange axis).

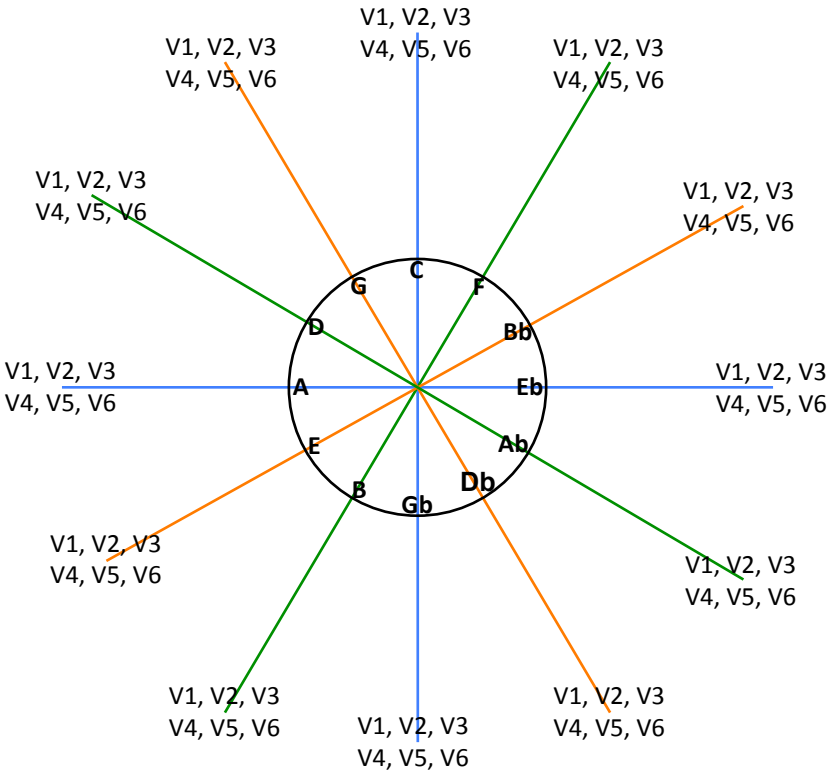
This 'blue-to-orange' relationship shown in the first three chords in Figure 2-39 is exactly the relationship as the 'green-to-blue' relationship shown in Figure 2-37. It is also the exact same relationship as shown by chords '3' and '4' (back to Figure 2-39 now) to that of chord '5' ('orange-to-green'). The Emin9 (or Gmaj7/E, labeled '3') leading to the $A7^{\#5\#9}$ (or $D^{b}maj7^{\#11}$/A, labeled '4') functions not only as iii to VI in the key of C, but also as ii to V7 in the diatonic system of Dmin (green axis). The relationship of chords '3' and '4' (orange axis) bear the same relationship to chord '5' (green), as indeed chords '5' and '6' do with respect to chord '7' (green-to-blue).

So the relationship of the orange axis to the tonic system of the blue axis is one of tonicization of other levels of the original diatonic system (C major). Also, through a relatively simple example of a functional progression (I – IV – iii – VI – ii – V – I) through a key area using a modest amount of tonicization of other diatonic levels in the original tonic key (specifically the iii and the ii), it can be shown that the progression has moved through all three (blue, orange and green) tonic axes. This is important in the sense that it brings together all three axes in a functional way to examine one particular diatonic system. That the three axes are briefly tonicized in each of their own diatonic systems (complete with their own dominant chords, etc.) is also an important step towards a hierarchy within a larger, more chromatic background.

Getting back to the inventory of voicings, the above example of the relationship of the orange axis to that of the blue (as tonic) is simply that of moving through other

tonic areas within an overriding ‘key area’. These other tonic areas are tonicized in exactly the same way that the original tonic key is. So at this point, it can be said that all of the six voicings are functionally equivalent on all of the twelve points of the wheel (see Figure 2-40).

Figure 2-40.



Implications of Functional Equivalence

From an improviser's perspective, and as someone who has spent considerable time trying to precisely locate the parameters of playing within a key, this points in an interesting direction. Perhaps the idea of a 'key' or 'tonal centre' is larger than previously thought. Equally intriguing is the thought that as the idea of tonality or tonal centre broadens the same concepts apply in terms of voice leading and comprehensibility. Functional equivalence is the thread that the improviser can follow through a 'key-centred' environment and ultimately past that into an area that is beyond the conventional idea of local tonality.

To the improviser, this idea of functional equivalence is vastly significant. In order to negotiate one's way through music in real time, one must have a large amount of material at one's disposal, able to be summoned almost instantaneously. If the manner in which one codifies information is not very streamlined or compact, the process becomes much too cumbersome.

In a situation that is tonally very simple, functional equivalence allows the improviser to introduce more complexity into the situation by using other vocabulary based on different structures that have the same function. This is an expansive process, allowing more freedom of expression and a broader palette of ideas.

Conversely, in a situation that is already very complex, this same system can be used to find a simpler path through the complexity. While this reductive process is not as

easily implemented in real time, a performer can utilize this concept to plot a more manageable path through a complex system in a minimum amount of time.

Further Reduction – Movement A

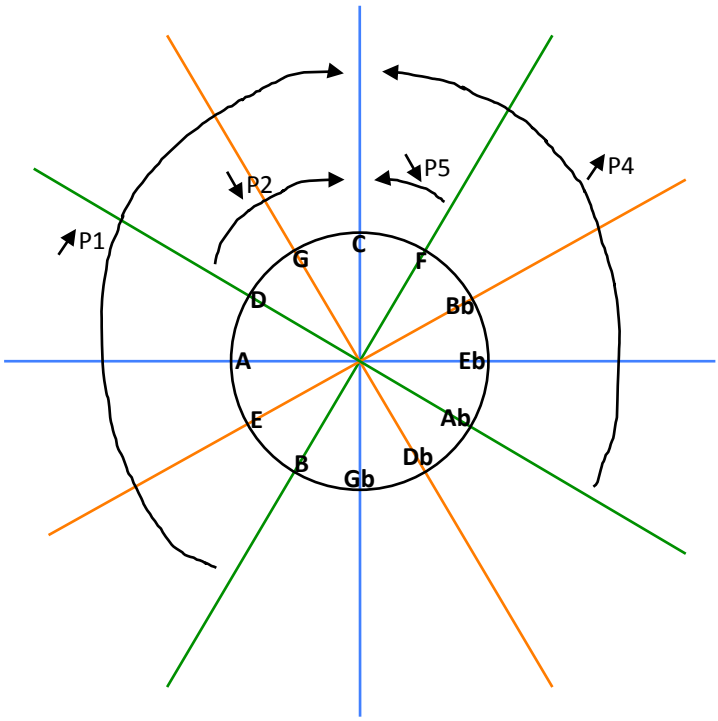
It has been shown earlier that, purely on a voicing level, a movement from the green axis to that of the blue axis can be viewed as a V - I type progression (see progressions listed in Figure 2-31). If one views this green-to-blue movement to be functionally equivalent in all its combinations, then a large number of progressions can be pulled together into one idea that, although spreading itself across many key areas, says basically the same thing in all its possible realizations.

The idea of V - I as a name for this movement is perhaps too narrow, in that it is traditionally used in the context of a 'key', whereas here there is a need for the idea to be larger than any one particular key. The concept is more towards the idea of 'authentic cadence', but this also has too narrow a definition for it to apply here.

For lack of a better term, this movement will be labeled as Movement A which will be defined as the movement from one axis to another that is one notch in the counter-clockwise direction (as in green-to-blue, blue-to-orange, or orange-to-green). Also, because it has been shown that all of the voicings used here are functionally equivalent on all poles of each axis, Movement A can be expressed in several ways. Figure 2-41 shows how each of the four poles of the green axis can move to one particular pole of the blue axis.

Figure 2-41.

Movement A



All of these exact movements can be seen back in Figure 2-32 (along with the actual progressions listed in Figure 2-31), with the exception of the movement here from 'D' on the green axis to 'C' on the blue (two notches in the clockwise direction), which is shown in Figure 2-32 as a movement from 'F' on the green axis to 'Eb' on the blue (also two notches in the clockwise direction).

Pitch Level

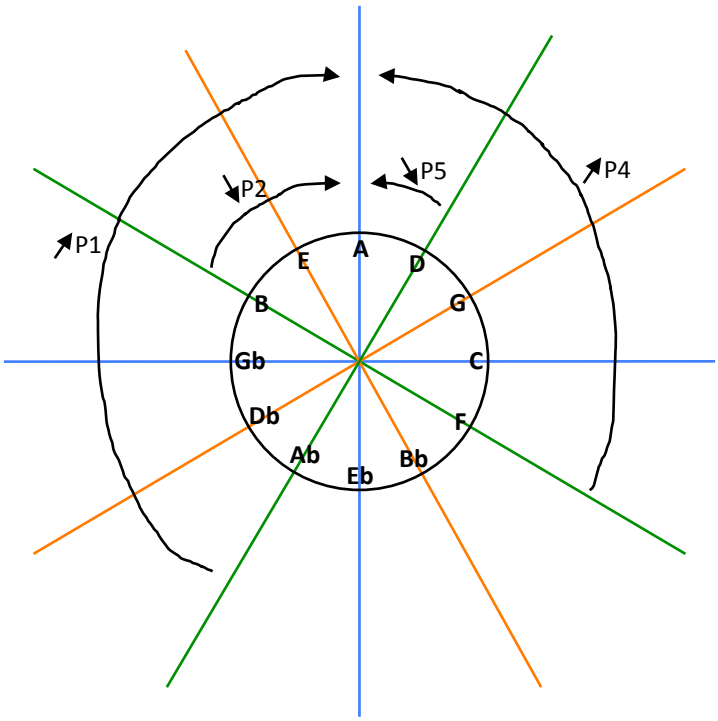
Another manner in which these movements can be expressed is that of 'pitch level'. As can be seen above in Figure 2-41, the movement of any of the six voicings from pitch level 'F' (on the green axis on the upper right) to pitch level 'C' (one notch to the left, or counter-clockwise) can be seen as a movement of the voicing down five semitones or down Pitch Level 5 (as is indicated next to the arrow showing the movement from 'F' to 'C'). Similarly, the movement from pitch level 'Ab' (on the green axis at lower right) to pitch level 'C' can be seen as a movement of the voicing up four semitones or up Pitch Level 4. The same idea goes for the other two movements. 'B' to 'C' is up one semitone (up P1), and 'D' to 'C' is down two semitones (down P2).[19]

The same pitch level movements apply to all of the other three poles on the blue axis, as can be seen in Figure 2-42 where the 'wheel' has been rotated 90 degrees in a clockwise direction, and now has pitch level 'A' at the top instead of that of 'C'. All of the movements are identical. The movement of green-to-blue (as well as blue-to-orange and orange-to-green) can be said to be functionally equivalent across the boundaries of traditional key areas.

[19] These pitch level indications can be referenced here in all figures as far back as Figure 2-14.

Figure 2-42.

Movement A (Rotated 90 Degrees)



Further Reduction – Movement B

If Movement A can be defined as a movement of the voicing one notch in the counter-clockwise direction (green-to-blue, blue-to-orange, or orange-to-green), then there must also be a mirror image movement in the opposite direction. This movement, called Movement B, is defined as the movement from one axis to another that is one notch in the clockwise direction (as in blue-to-green, green-to-orange, or orange-to-blue).

Whereas up to this point this document has been concentrating on the progression of V - I (and its variants), Movement B has been absent (with the exception of a couple of places in Figures 2-36 and 2-37). In those diagrams, the movement from chords 1 to 2, and 4 to 5 fall under the definition of Movement B. In the progression mapped out in those two figures, the two movements in question go from the 'C' pole of the blue axis to the 'F' pole of the green axis, or one notch in the clockwise direction.

This example is quite a simple one, in that the progression involved is completely diatonic with absolutely no chromaticism whatsoever, but the movements are both analogous to a *tonic to subdominant* movement. For the purposes of this discussion, we have already ascertained that at the level of the voicing, the sub-dominant and the dominant are indistinguishable, and therefore not properly part of this discussion.[20]

What is pertinent to this discussion, and much more applicable to the history of the jazz language, is the idea illustrated in the following variant of the I - IV - iii - vi - ii - V - I progression shown in Figure 2-43.

[20] An interesting discussion of *tonic to subdominant* issues can be found in: Deborah Stein, "The Expansion of the Subdominant in the Late Nineteenth Century," *Journal of Music Theory Vol. 27,* no. 2 (Autumn 1983), 153-180, accessed July 2, 2014. *JSTOR*

Figure 2-43.

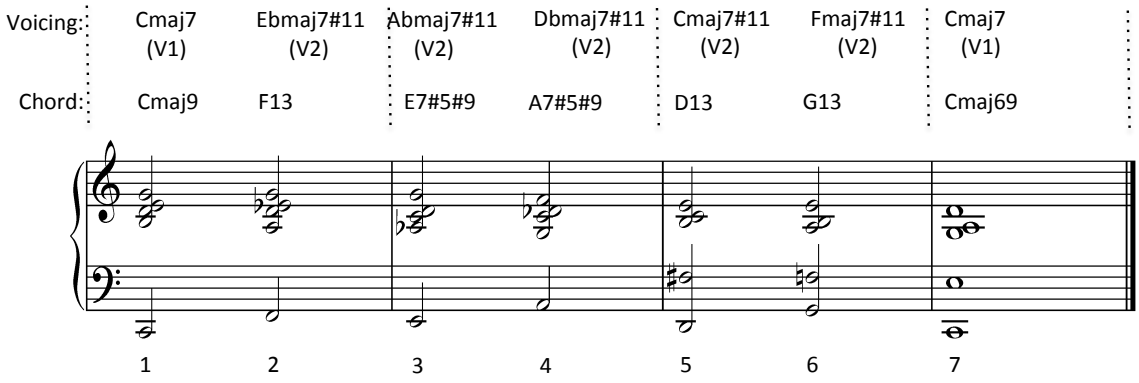
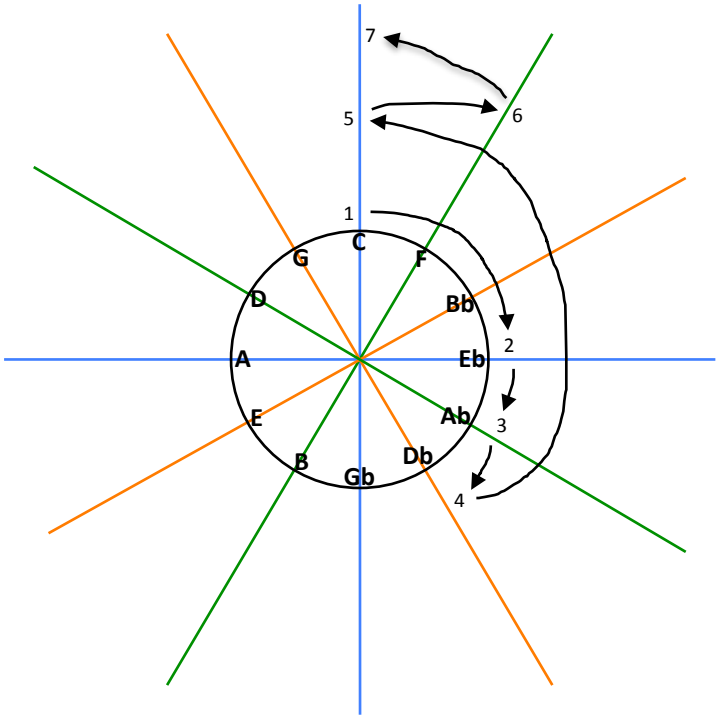


Figure 2-43 shows yet another step in the chromatic decoration of a diatonic system. The progression in Figure 2-36 was a totally diatonic view of a tour through the key of C major. Figure 2-38 was a view of the same system using some tonicization of other levels in the system of C major (specifically E minor or iii, and D minor or ii). Here in Figure 2-43 another step can be seen in the direction of increased chromaticism, or a more global view across key areas while still retaining the key centre of C major. This is an example of 'dominantization' (or taking each chord in the progression and turning it into a dominant chord).

If the voicings of the chords indicated by the integers below the staff are plotted on the wheel (as before) the results can be seen in Figure 2-44.

Figure 2-44.



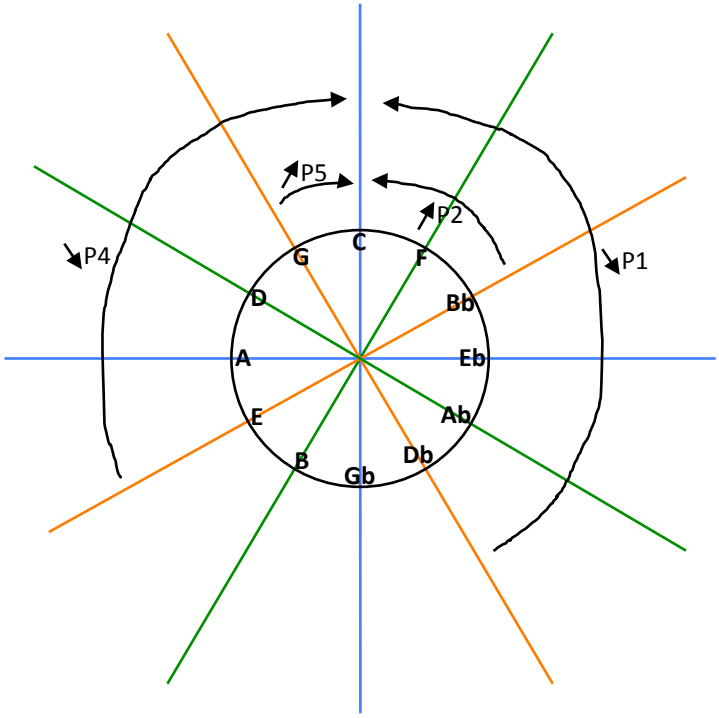
Other than the initial movement from '1' to '2' being a blue-to-blue movement, all of the subsequent movements (with the exception of '6' to '7') are examples of Movement B, or movements of one notch in a clockwise direction. '2' to '3', and '3' to '4' are easily identified as such, but '4' to '5' is not as obvious. Had voicing '5' been at the pitch level of 'G^{b}', the continuation of the clockwise movement would have been more visible. However, the fact that it moves to pitch level 'C' (180 degrees from 'G^{b}') has no bearing on the orange-to-blue movement from '4' to '5'. '5' to '6' is again the same clockwise movement, and then the green-to-blue (counter-clockwise) Movement A ('6' to '7') back to the tonic.

Although familiarity, plus the choice of particular voicings for chords on certain levels of the diatonic system of C major, allows one to keep track of one's location through this progression, there really is no reason that any one of these dominant chords might not cadence into a tonic of its corresponding diatonic system (V-I). Or, for that matter, the string of dominant chords could continue right past the expected destination and land somewhere else. In this way, Movement B serves as a method of moving *across* key centres without committing to any one of them. It is the very essence of non-committal transition across key areas, in contrast to Movement A, which is essentially a defining, or a 'nailing down' of a tonic area (however temporary).

Like Movement A, Movement B can be expressed in terms of Pitch Level, and just as its movement is a mirror image of Movement A (clockwise as opposed to counter-clockwise), the changes in pitch level reflect this inversion. Figure 2-45 shows the motion from each of the poles of the orange axis to the 'C' pole of the blue.

Figure 2-45.

Movement B



Like Movement A, the orientation of the wheel does not matter; the pitch level movements are identical no matter which of the blue axis poles is the destination point. This also applies to all other one-notch clockwise movements (blue-to-green and green-to-orange).

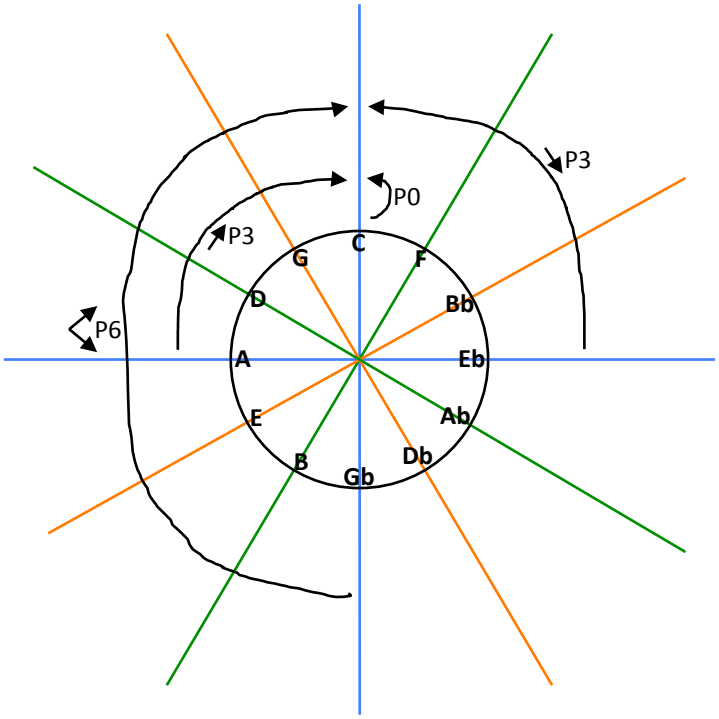
Further Reduction – Movement C

There is one remaining possible movement: the motion from one pole to another on the same axis (or to another voicing on the same pole). This has been dealt with

extensively in the earlier section dealing with ii - V - I progressions (Figures 2-3 to 2-30) as the progression from the minor ii chord to the V (dominant) chord. This can be seen clearly in Figure 2-25 and can be defined as 'no functional movement', but as will be seen later it can appear otherwise. Figure 2-46 shows the four movements in terms of Pitch Level and pathways from pole to pole.

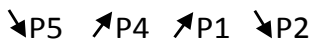
Figure 2-46.

Movement C



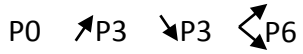
To summarize in terms of changes in voicing pitch level, these three motions can be expressed as follows:

Movement A -



Movement B -

Movement C -

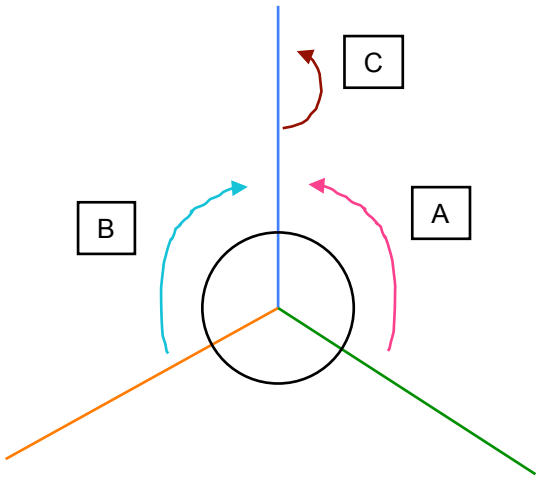


Still Further Reduction – The 3-Point Axis

The plotting of 'voicing level' on the Lendvai wheel proves to be a useful tool in illustrating the concept of functional equivalence across the boundaries of key areas while still keeping intact a number of local details in the navigation of an increasingly global chromatic landscape. However, further simplification allows an even clearer view of the functionality of chord progression.

If, in fact, the four poles of each of the three axes on the wheel are indeed functionally equivalent in the many ways laid out here thus far, then they could be reduced down into a three-pronged structure (shown in Figure 2-47) where the four poles of each axis are rolled into one. Movements A and B are clearly visible as 'one-notch' movements in counter-clockwise and clockwise directions respectively (as opposed to any one of 16 different pathways), and Movement C is easily seen as a step along the same pole. They can even be colour-coded for ease of identification.

Figure 2-47.



The advantage of this reduced system is that one can more clearly see the functionality of the progression across key centres, especially in more chromatic environments or systems that are pulling elements together from multiple key areas. For

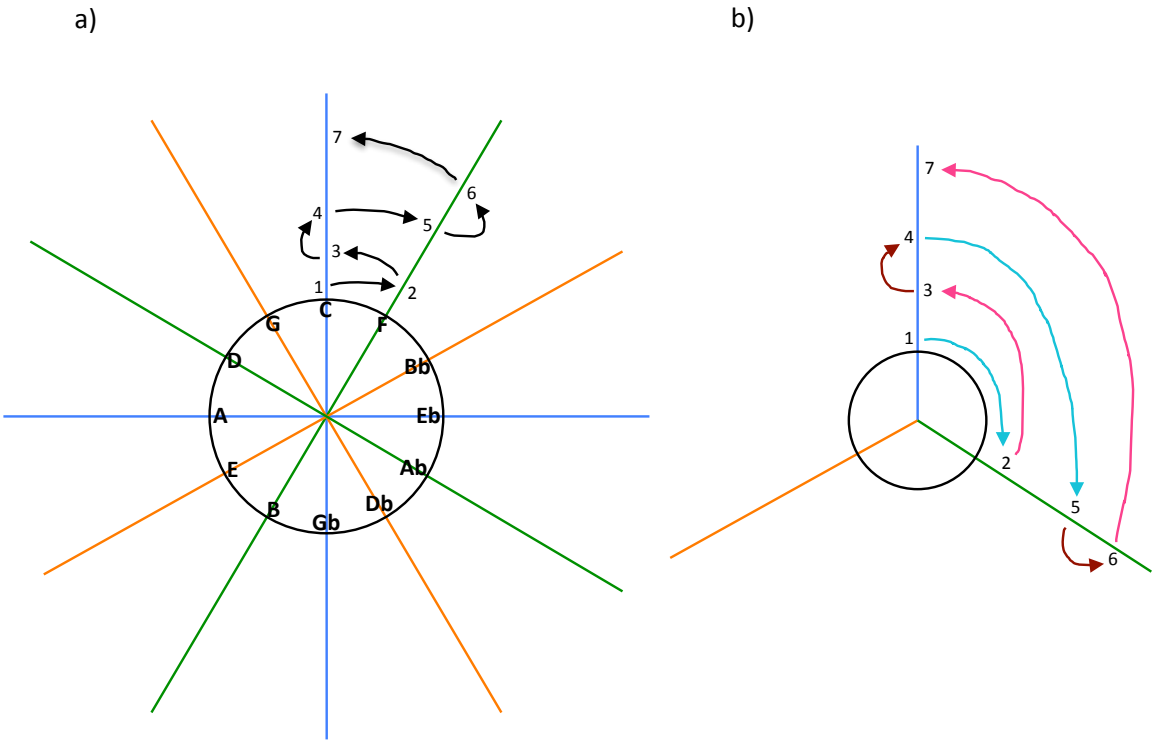
improvisation, it can clarify the location of the main resolution points in a progression so that one has a destination point toward which the trajectory of an improvised line can be aimed. For composition, it can illuminate alternate, yet functionally equivalent, progressions or pathways with which to reframe a melodic idea.[21]

To illustrate this extra layer of clarification the earlier graphics of the progressions shown in Figures 2-36, 2-38 and 2-43 (i.e. progressions of I - IV - iii - vi - ii - V - I using different strategies to incorporate other levels of chromaticism into a single key area) are shown below juxtaposed with the same progressions plotted on this newer system. In Figure 2-48 the 'full diatonic' version (from Figure 2-36) of this progression is plotted first on the full twelve-point axis wheel (a) and then on the reduced three-point wheel (b).

[21] This harmonic reframing of a melodic idea is of particular importance in Wheeler's music.

Figure 2-48.

I – IV – iii – vi – ii – V – I (full diatonic)

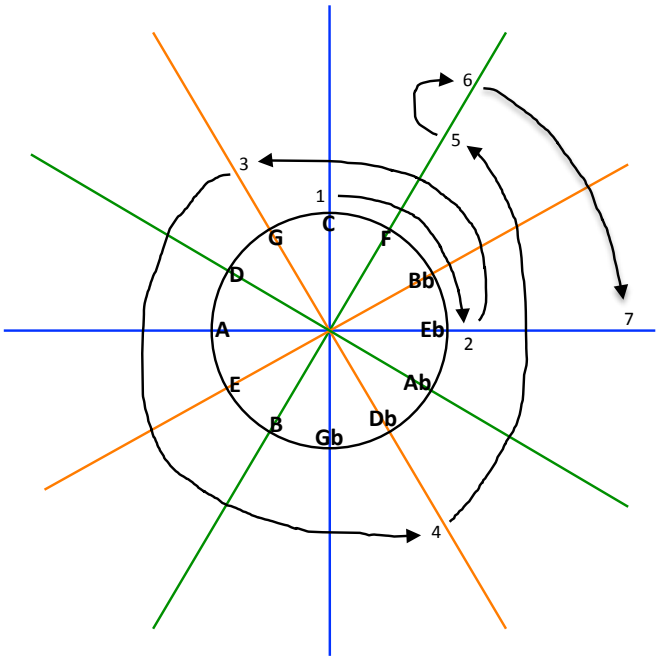


Other than the direction of the movements highlighted by the colour-coding in the graphic on the right, there is not any significant difference between (a) and (b) of Figure 2-48. However, when the progression from Figure 2-38 (the same basic progression but using some tonicization of other levels of the diatonic system, and so incorporating more key areas) is shown in the same way, a different picture emerges (see Figure 2-49).

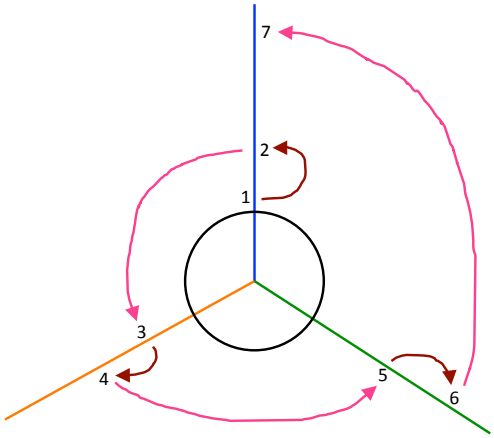
Figure 2-49.

$$I - IV7 - iii - VI7 - ii7^{b5} - V7^{b9} - I^{0}$$

a)



b)

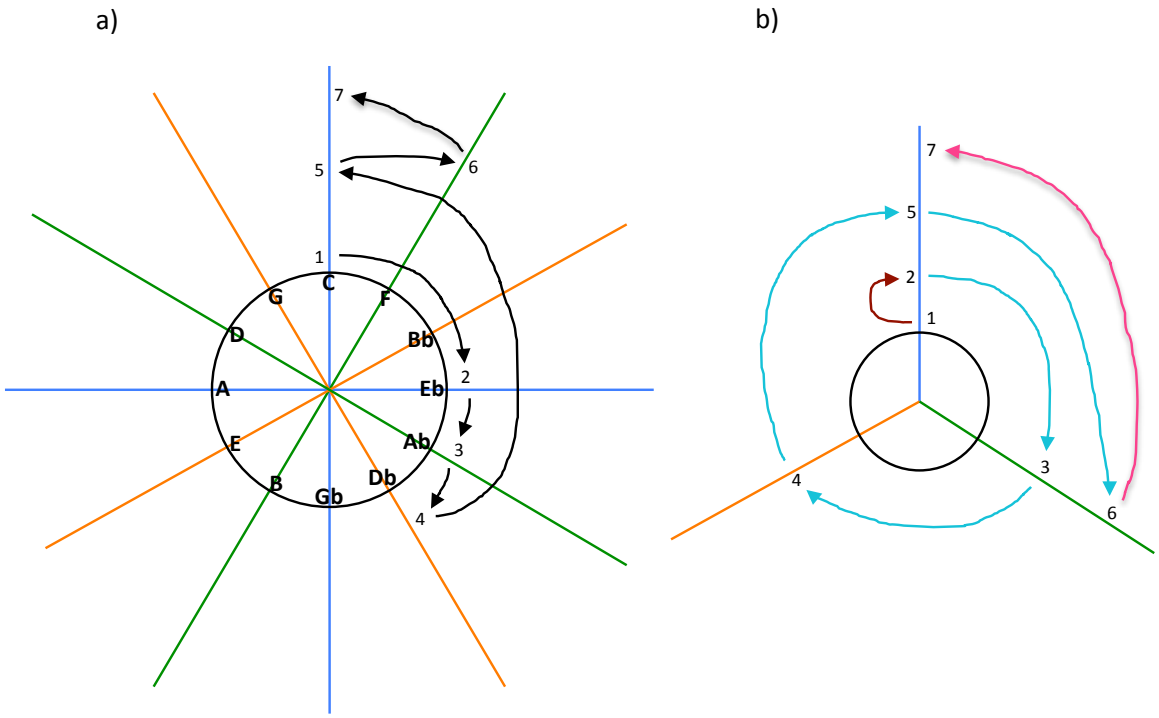


While the convoluted path shown by the movements in graphic ‘a’ does indeed give an accurate reading of the voicings (and therefore the pitch collection possibilities) available in the progression, there is no doubt here that the graphic ‘b’ gives a much clearer picture of functionality and intent. The strategy of tonicizing points of other axes, as well as the sequential movement through all three before arriving back to the place of origin, while vaguely visible in graphic ‘a’, is much more clearly shown in ‘b’.

In the same manner, when the progression shown in Figure 2-43 (using all dominant chords) is plotted graphically, another picture becomes visible. This can be seen in Figure 2-50.

Figure 2-50.

I – IV7 – III7 – VI7 – II7 – V7 – I



Again, graphic 'b' in Figure 2-50 gives a much clearer representation of the functionality of the progression, starting with the movement along the blue axis (Movement C, brown) followed by a series of sequential clockwise motions (Movement

B, light blue) which glide across the surface of multiple systems before finally going in for a landing on the last chord (7) with a counter-clockwise motion (Movement A, pink).

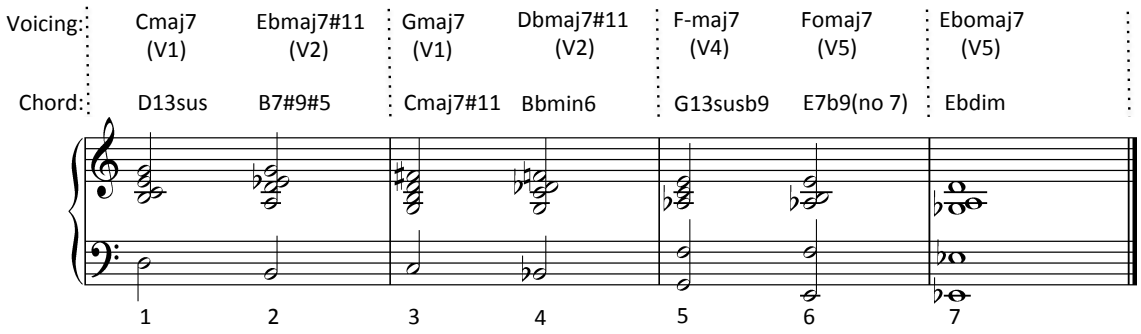
These three variations on a progression through a diatonic system, or key area, are examples of the use of more and more chromaticism in the *elaboration on*, or *decoration of* that diatonic system or key area. The first was a completely diatonic example using no chromaticism whatsoever (Figures 2-36, 2-37, and 2-48). The second was the same basic progression but with enough chromaticism to outline some 'secondary tonicization' of a couple of other levels in the original diatonic system (Figures 2-38, 2-39 and 2-49). The third was, again, the same basic progression, but this time using a string of dominant chords to outline a different type of movement across multiple systems in a longer harmonic trajectory (Figures 2-43, 2-44, and 2-50). Yet when heard, all three of these progressions are perceived by the listener as elaborations on the same key area or diatonic system.

Decoupling of Voicing and Root Movement

So what is it that keeps the listener grounded in the key area when so much other material is added into the mix? A possible answer to this question might be more nuanced than one might think. It has been shown earlier that a great deal of functional detail is bound up in the movement of the voicings themselves (voice leading pathways, etc.), but one of the primary common threads that binds these three examples together is the identical root movement used in each one.

Consider the progression shown in Figure 2-51 below. On a voicing level it is identical to the one shown in Figure 2-38 (and graphically represented in Figure 2-49a and b). With the exception of a slight alteration of the structure of the first chord (to bring the C back into the voicing) nothing has been changed except for the root movement.

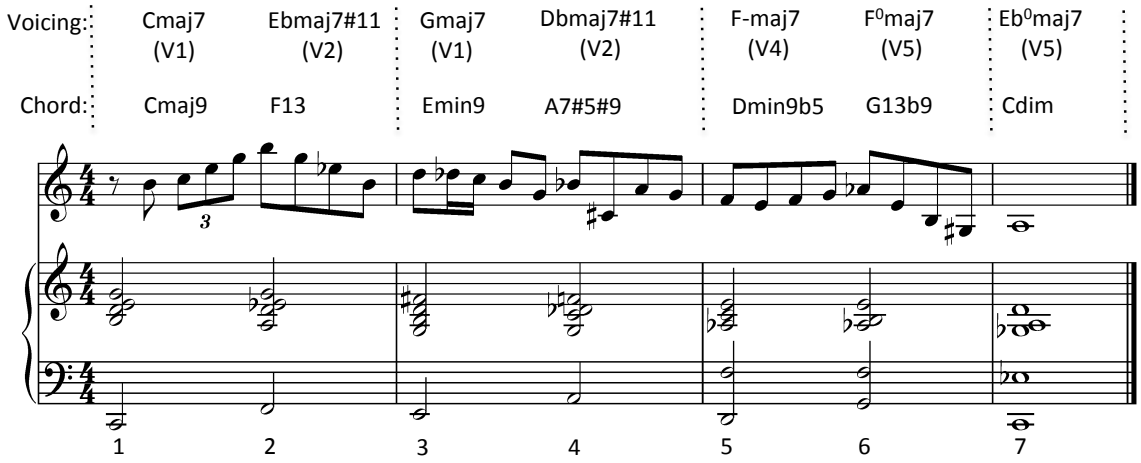
Figure 2-51.



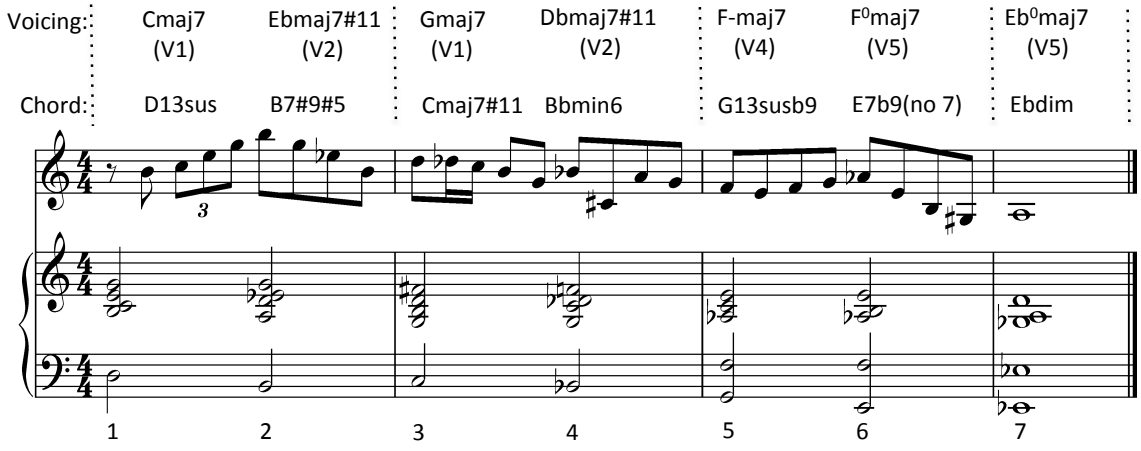
This progression, while preserving all of the functionality of the original (I - IV7 - iii7 - VI7^{alt} - ii7^{b5} - V13^{b9} - I^{0}), would not necessarily be recognized as such upon first reading by an improvising performer. Yet it retains a surprising amount of the original progression's 'flavour', directionality and intent. The similarity is even more striking when juxtaposed with some melodic material as in Figure 2-52. Progression 'a' (the original C major system progression as shown in Figure 2-38), and progression 'b' (with the modified root movement) are paired with the same fairly simple bebop-type melody line through the progression.

Figure 2-52.

a)



b)



Both of these examples sound remarkably similar, and not surprisingly, since they both describe identical pathways through the tangled web of tonal relationships described up to this point on the 12-point axis wheel (Figure 2-49 ‘a’ and ‘b’). But without the familiar root movement from the original system of C major, graphic 2-52b is removed

from what is often referred to in the analysis of late 20th-century jazz as the area of 'functional harmony'.[22] The idea that the root movement (while not insignificant) has less to do with the functionality of the progression than one might think, is an important one as we continue with this process. Indeed, the fact that the basic functionality of a progression can be shown to depend on the movement of the voicing (as defined previously in Figure 2-1) goes a long way to showing that even the most 'non-functional' progressions are actually as truly functional as anything else.

Historical Evidence of Voicing/Bass-Note Separation: Naima

That the root motion and the voicing (as discussed here) can be separated is not a new one, and in fact can be traced in jazz back to the late 1950s in a composition by John Coltrane titled "Naima".[23] This song is written in AABA form, and consists of a string of chord voicings over a stationary pedal point (E^b in the A sections, and B^b in the B

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[22] A concept that surfaces in the literature regarding harmonic progression in jazz compositions during the 1960s is the idea of 'functional' vs. 'non-functional' progression. This idea seems to be solely based upon the root movement in fourths or fifths (up or down respectively) being regarded as functional, vs. root movement utilizing some other interval being regarded as non-functional. Some examples of the discussion of this concept can be found in:

Waters, "Modes, Scales, Functional Harmony," 334-339.

Steven Strunk, "Notes on Harmony in Wayne Shorter's Compositions, 1964-67," *Journal of Music Theory* Vol. 49, No. 2 (Fall 2005): 303,305, 308, accessed June 16, 2014, *JSTOR*.

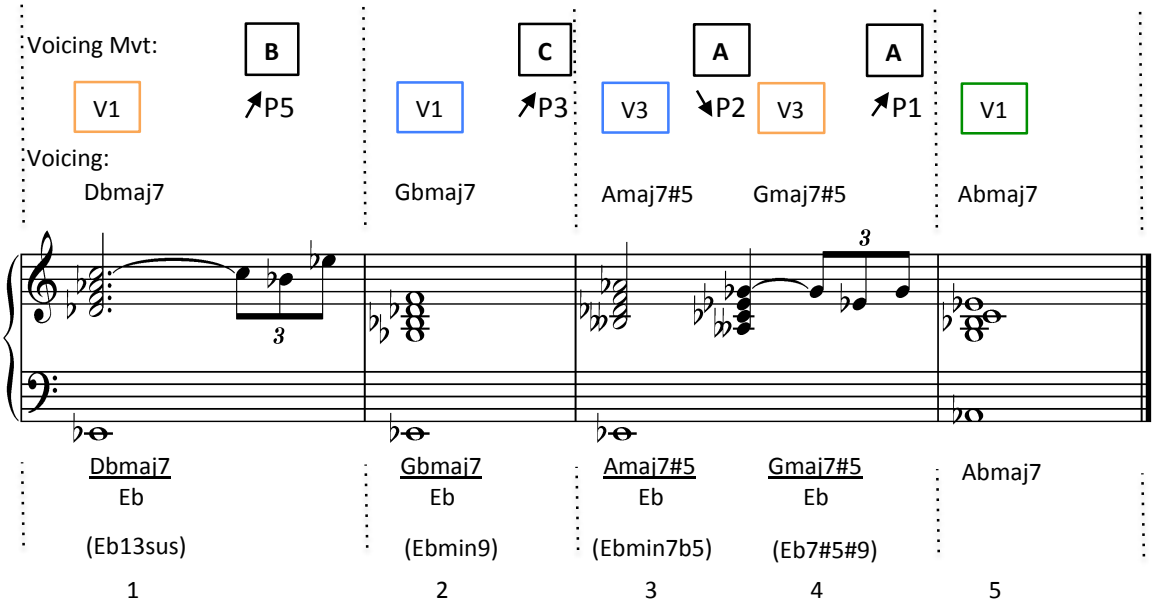
One of the main aims of this paper is to show that the 'functionality' of a chord progression has less to do with root movement, and more to do with voicing movement as an indication of pathways through pitch collections (or diatonic systems).

[23] Lord, *The Jazz Discography*.

section) in accompaniment to the melody. The A section is shown below in Figure 2-53. Above the staff is indicated the voicing (colour-coded to locate it on the wheel) as well as the pitch level change and the voicing movement (A, B, or C).

Figure 2-53.

Naima (A Section)



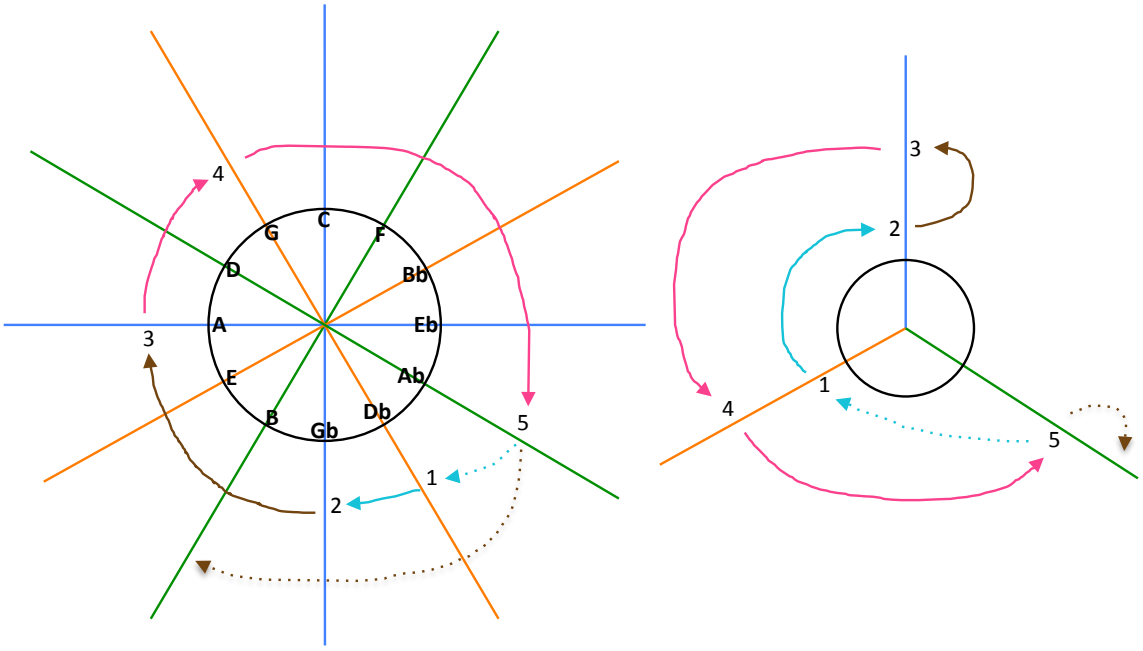
This is a particularly good example because it shows quite an important step away from a diatonic background and suggesting a more voicing based approach. A first glance at the chord symbols below the staff reveals the pedal point of Eb heading toward the tonic of Ab in bar 4, indicating a traditional dominant-tonic relationship. But on further examination, the chords in bars 2 and 3 are perplexing. While chord number '2' (using the numbers at the bottom as identifiers) is not so far-fetched (although a V minor

chord is certainly unusual in the bop and post-bop harmonic language), chord number '3' is downright odd in the jazz harmonic language of the time (1958-59).

If the five chords in Figure 2-53 are plotted on the colour-axis wheel (both 12-point and 3-point, shown below in Figure 2-54 'a' and 'b' respectively), a somewhat clearer picture of the functionality of the progression can be seen.

Figure 2-54.

a) b)



Starting on the orange axis, the voicing moves away from the tonic green axis in a Movement B to the blue ('1' to '2'), and then after a lateral move to another blue ('2' to '3', Movement C) chords '3', '4' and '5' progress through two consecutive A movements to doubly reinforce the tonic A^{b}. These two A movements, together with the root

movement of E^b to A^b into the last bar give such a strong sense of cadence into the tonic that after hearing it twice (the dotted Movement B from chord 5 to chord 1 is the repeat back to the second A section) the listener is willing to sit through a bridge that is not only twice as long as the A section, but has almost no functional movement whatsoever. (The dotted Movement C from chord '5' leads into the bridge.)

The B section is shown in Figure 2-55 and Figure 2-56 in the same format as Figures 2-53 and 2-54.

Figure 2-55.

Naima (B Section)

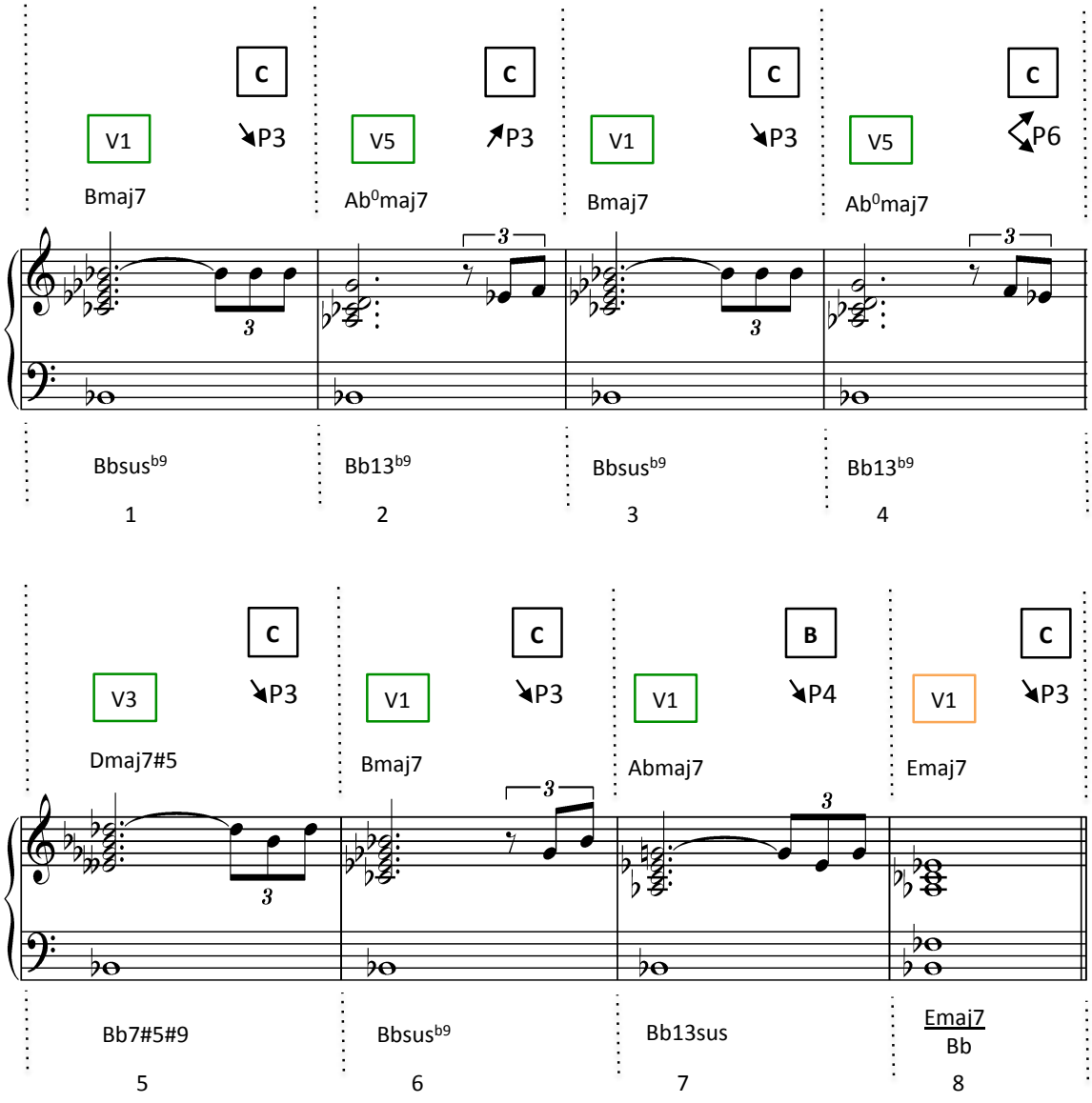
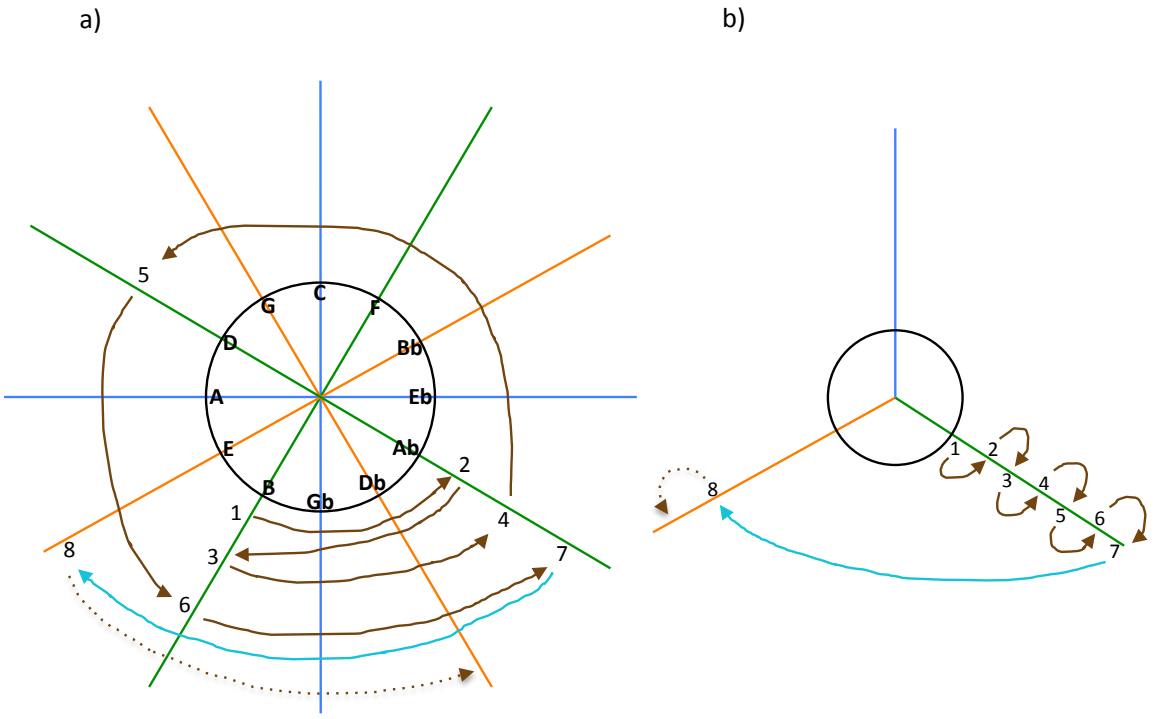


Figure 2-56.



Again, the functionality (or in this case, non-functionality) of the progression of the bridge section can be plainly seen, first in Figure 2-56a where there are multiple C movements (brown arrows) moving completely around the entire wheel stopping at all green poles except for that of 'F' on the top right. Then, after seven consecutive chords of equal function, a step is taken via Movement B (light blue) to the orange axis (chords '7' to '8') where the last A section of the song is entered via another Movement C (dotted brown arrow) to the 'D^{b}' pole of the orange axis. Figure 2-56b shows the exact same movements but in a reduced and more simplified manner. The lack of functional

movement is obvious from chord '1' through chord '7', and the Movement B from '7' to '8' is clearly visible.

It is important to remember that "Naima" was recorded in 1959 and although it displays some interesting voicing movement, the root movement is basically just two pedal points: one in the A sections and another in the bridge. Once the root movement achieves the same mobility as the voicing, things take on a whole other layer of equivocality.

Advantages of this Type of Reduction

In a situation that is easily seen as fairly key-centric, or clearly in one diatonic system, the improviser would probably have enough experience to be able to recognize the situation as such, and have the skills to read it accordingly. Reducing the system to a graphic representation the likes of that in Figure 2-48 is not that helpful. But certainly in the example of the progression shown in Figures 2-51 and 2-52b, the reduction in Figure 2-49 proves quite illuminating in terms of function and directionality of the line that an improviser might be asked to produce (right then and there, in real time, at a split second's notice).

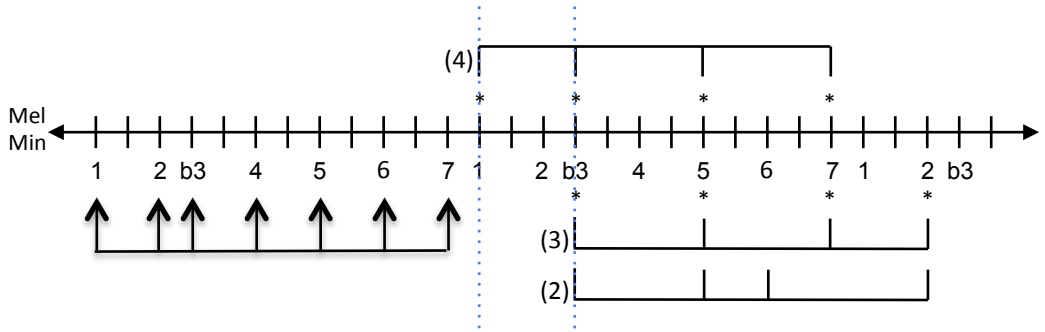
The advantage of the three-pole reduced system is one of compactness. The improviser can see functionality across key centres, and the more of a chromatic background the system is drawing from, the more comparatively simple the picture becomes. Conversely the twelve-pole system is one of expansion, one that allows a

composer or improviser to rework ideas, to find other ways to harmonically frame melodic ideas, or to find alternate realizations of a functional harmonic progression without losing its inherent functionality.

Other Points to Consider: Diatonicism towards Chromaticism

Consider that chords are really six or seven (or even eight) note pitch collections that can be reduced to scales, or large arts of scales. And since the subject matter tonal music, these scales are ones from which emerge chords that produce coherent harmonic progression. The voicing allows for, or in fact defines, a hierarchy within this larger pitch collection, as illustrated in Figure 2-57.

Figure 2-57.



In Figure 2-57, the melodic minor scale is shown with the location of voicings 4, 3 and 2. The notes that make up the actual voicing as a group are indicative of the pitch

collection itself, and are highlighted with the asterisks.[24] It is as if these notes are raised like Braille to lift them to a position of prominence above the remaining scale tones.

The arrows at lower left indicate possible bass notes to be placed under the voicings in question. When each of the seven notes of the scale is placed beneath each of these voicings as a bass note, it produces a chord that can be used in key-centred systems in various ways. These ways are numerous, and many of them have already been touched upon here in this document.

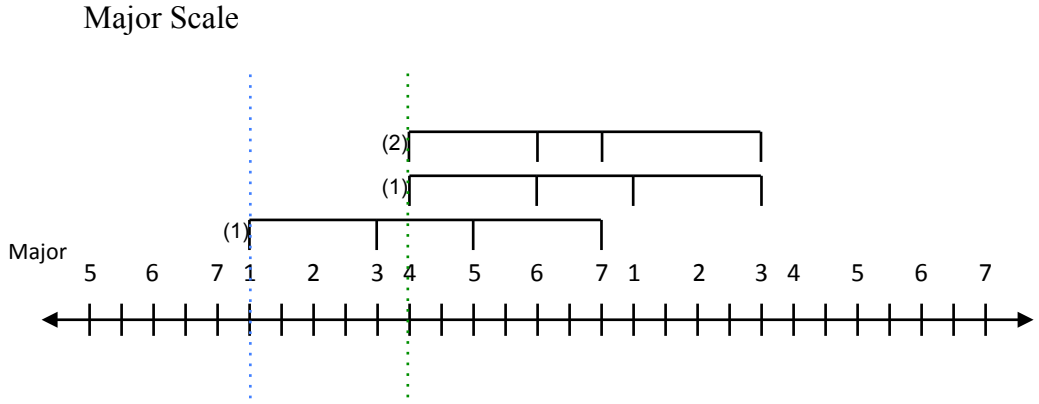
This example is very neat and tidy in that it provides no contradictory information in terms of the axis view. All three voicings available in the melodic minor scale are on the same axis (indicated by dotted blue vertical lines) due to the fact that they are separated by the interval of a minor 3rd.[25] Also the diminished scale adheres easily to the axis approach due to the fact that it is symmetrical at the intervals of a minor 3rd (up or down) and a tritone. But this is not the case with all scales.

The major scale is problematic in a voicing-based approach, in that the two voicing levels contained in it are separated by the interval of a perfect fourth. This means that the major scale straddles two poles of the graphic system (see Figure 2-58).

[24] V2 is not as indicative of the pitch collection as V3 or V4, as it is also found in the major scale, however, it is available to be used.

[25] In C minor, for example, these voicings would be found at pitch levels "C" and 'Eb" which are both on the blue axis.

Figure 2-58.



If one considers the above diagram to be the scale of C major, the voicing (V1) on the first degree of the scale (Cmaj7) would be found on the blue axis (indicated by the vertical dotted blue line) in the system constructed thus far. The two voicings (V1 and V2) found in the same scale but on the fourth degree (Fmaj7 and Fmaj7$^{\#11}$) are found on the green axis (vertical dotted green line). Whereas in the melodic minor and diminished scales the voicing level defines the pitch collection of the scale in terms of axis placement, no such certainty exists with the major scale.

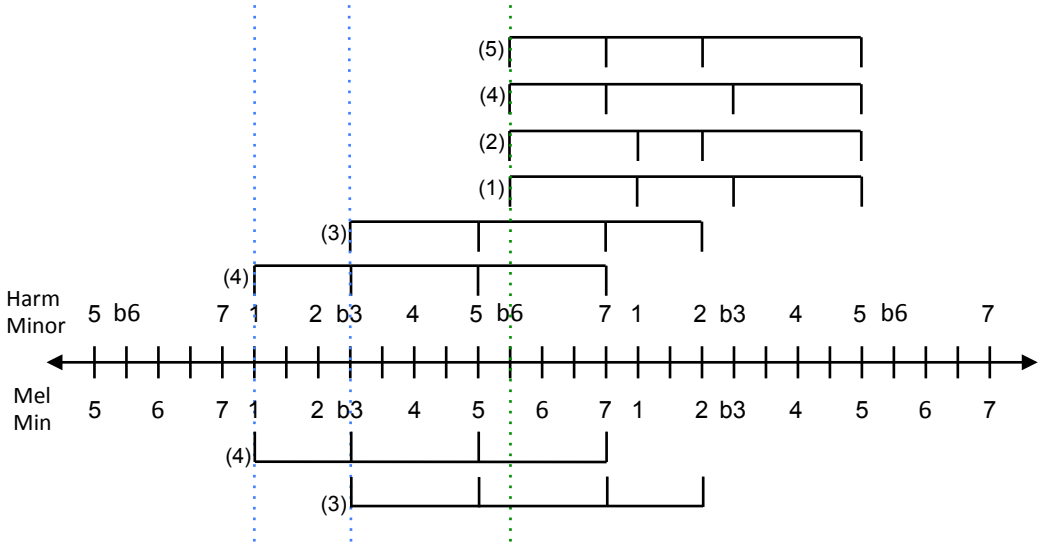
Other Scales: Harmonic Minor and Harmonic Major

The major scale is by no means the only one where a contradiction exists between axis locations of the voicings contained therein. The harmonic minor and harmonic major scales are also interesting and on a couple of different levels.

Each of these scales differs from the previously mentioned seven-note scales (major, and melodic minor) in that they contain three semitones and, therefore, an extra (three instead of two) location for voicing construction. Below in Figure 2-59 is a representation of the harmonic minor scale juxtaposed with the melodic minor.

Figure 2-59.

Harmonic Minor vs. Melodic Minor



The first thing that is striking about Figure 2-59 is the sheer number of available voicings in the harmonic minor scale; many more than the ones examined previously. Another significant detail is that the relationship between voicings 4 and 3 is preserved at the corresponding degrees of 1 and $^{b}3$. Yet another is that by altering only one note from

the melodic minor to produce harmonic minor (6 to ^{b}6), four voicings are made available at a single pitch level (that of the ^{b}6).

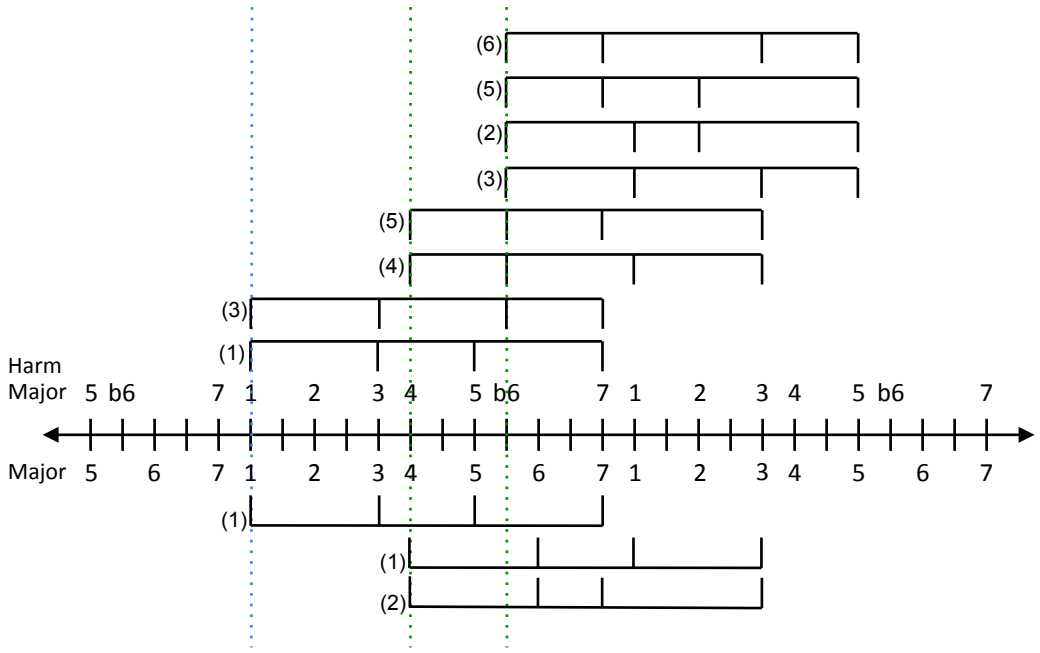
But the most significant detail is that the same discrepancy in voicing pitch level (blue/green) that was indicated in the major scale (Figure 2-58) exists here in the harmonic minor between the level of the original voicings of the melodic minor (V4 and V3, shared by both melodic and harmonic minor, and indicated by the vertical dotted blue lines) and that of the newly-formed voicings at the level of ^{b}6 in the harmonic minor (indicated by vertical green dotted line).[26]

A similar situation emerges in the harmonic major scale, which brings even more voicings into the picture than did the harmonic minor. Figure 2-60 shows the harmonic major scale juxtaposed with its corresponding tonic major scale, and shows an even deeper entanglement between the green and blue axes.

[26] It is important that one keep in mind that the relationship of blue-to-green here is only applicable in the case of these scales being built on a tonic from the blue axis ('C', 'Eb', 'Gb', or 'A'), and that the relationship is universal when considered at the level of green-to-orange, or orange-to-blue. See Figure 2-24.

Figure 2-60.

Harmonic Major vs. Major



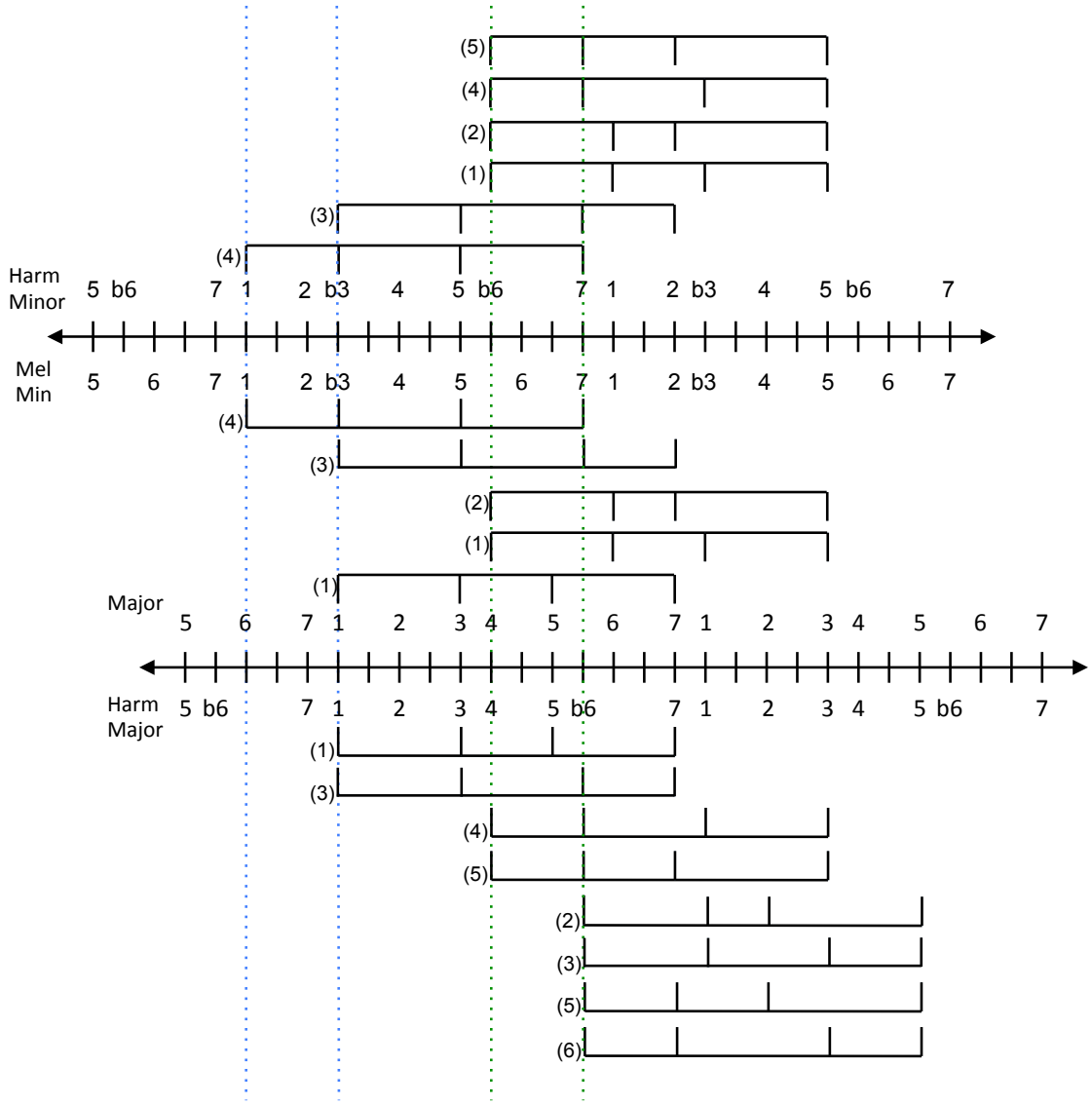
As before, using the blue axis as tonic, one can see two levels of multiple voicings emerging on the green axis (corresponding to two separate poles of the green axis on the 12-point axis wheel shown in Figure 2-24), as well as a similar pile-up of voicings at the level of $^{b}6$ as was seen in the diagram of harmonic minor in Figure 2-59. To clarify, if the tonic of both scales is C, then there are now multiple voicings emerging at the levels of 'F' and 'Ab', which are both poles of the green axis.

A more complete picture (although far from complete) of the entangled web of relationships between adjacent axes (in this case blue/green) can be seen in Figure 2-61

where the pitch levels of the melodic and harmonic minor scales are contrasted with the major and harmonic major scales in terms of the relative major/minor relationship (minor built on the level of the 6th degree of the major).

Figure 2-61.

Harmonic/Melodic Minor vs. Relative Major/ Harmonic Major



There are several purposes in going into the level of detail regarding the duality of axis locations of voicings derived from these scales illustrated in the last few diagrams.

The first is to demonstrate the degree of complexity in spatial thinking required to visualize the relationships between key areas and pitch collections involved in negotiating even a moderate amount of chromaticism in a tonic-based diatonic system, let alone a wider more global chromatic background. This must be considered not only in terms of the composer, but also in terms of the improviser who does not have the luxury to sit back and consider his/her next move, but must react immediately in real time. This paper does not begin to scratch the surface of this complexity.

The second is to draw a parallel between this line of thinking and that of the process outlined back in Figure 2-13 which described the rising minor 3rd pitch levels of voicings involved in basic ii - V - I progressions. In Figure 2-13, the pitch levels of the voicings involved in the ii and V chords (which have since been shown to be indistinguishable in terms of pitch level and axis placement) are indicated on the lower part of the diagram (the scale labeled 'Major (tonic)') as occurring progressively on the fourth, flat sixth, and seventhth degrees of the tonic scale. The same picture is emerging here in Figure 2-61 where the vertical dotted green lines intersect the lower scale system (labeled 'Major' and 'Harmonic Major') at the level of the fourth and flat sixth degrees, and in the upper system (labeled 'Harmonic Minor' and 'Melodic Minor') where the green lines intersect at the flat sixth and seventh degrees. One only needs to add the full minor 3rd symmetry of the diminished scale to complete the entire 4-pole picture of the green. The main principle is that the relationship of the green axis to that of the blue axis

is that of a voicing Movement A within a tonic system of the blue axis, shown here in a 'relative major/minor' type relationship indicated where the blue dotted lines intersect both systems.

The third (and perhaps most significant) purpose is that if the voicing is to be the key to unlock the tracing of movement between diatonic systems that describe a pathway through a more global chromatic background, then the discrepancy between voicing levels as exhibited in all of the shown scales (with the exception of melodic minor and the diminished/octatonic scales) would render the entire system described here so far as untenable.

Would it not be necessary to show that one voicing would supersede the other in order to plot a path through chromatic space using the voicing pitch level as the vehicle driven across that space? An analysis of some of Wheeler's more challenging music from the late 1970s into the early 1980s will unfold a surprising answer to this question.

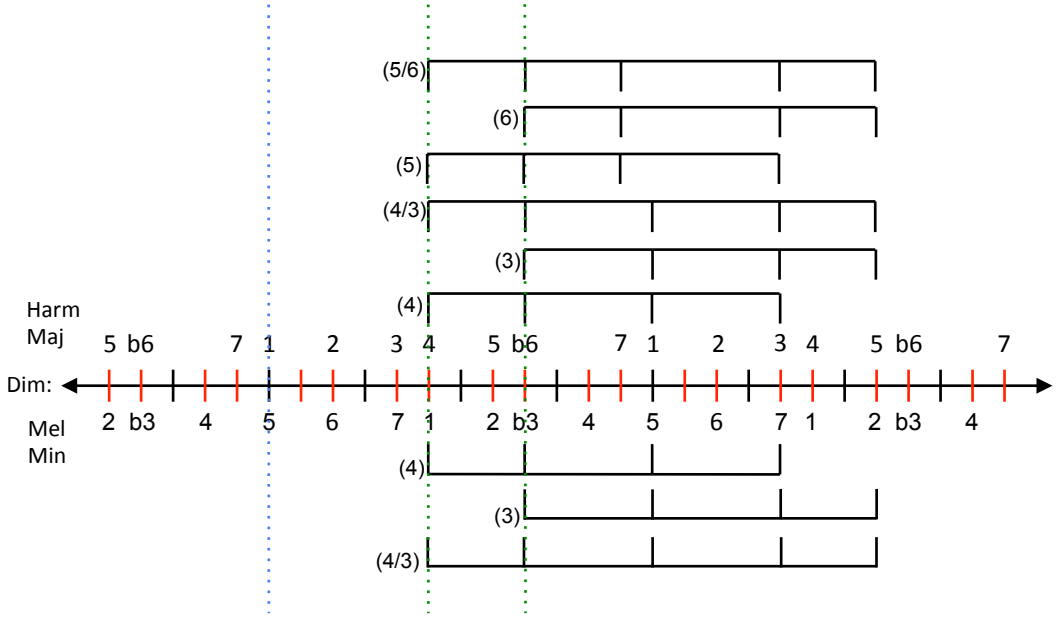
Functional Equivalence in Larger Structures and its Implications for Voicing and Pitch Sourcing

Earlier in this document (Figure 2-33), mention was made of two voicings, V5 and V6, being joined in a sort of symbiotic relationship through their common sourcing from the diminished (octatonic) scale. Another voicing pair with a similar relationship is that of V4 and V3. They are found on the first and flat third degrees respectively in both the melodic minor and harmonic minor scales. This can be seen easily in Figure 2-61 in the top system labeled 'Harm Min' and 'Mel Min'. This indicates a certain amount of

interchangeability between these systems in that if the relationship of these two voicings is preserved across both scales, then five out of seven notes are the same in both pitch collections. A closer look shows that these two scales actually share 6 out of 7 notes.

Also, in Figure 2-4 the melodic minor built on the fourth degree of the tonic major was utilized to source voicings to build dominant chords in a simple V - I system. In Figure 2-62, the relationships of these combined voicing structures are examined with respect to the harmonic major (acting as tonic in a hypothetical diatonic system), the melodic minor (built on the fourth degree of the hypothetical diatonic system, as it was in Figure 2-4), and the diminished scale (as utilized in Figures 2-5 through 2-11).

Figure 2-62.



In Figure 2-62, the relationship of V4 and V3 in the melodic minor (on the first and flat third degrees respectively) allows for the formation of a larger '4/3' structure (at bottom). The same relationship of V4 to V3 is preserved in harmonic major at the level of the fourth and flat sixth degrees. When the two scales are juxtaposed with the melodic minor built on the fourth degree of the harmonic major, the levels of the voicings V4 and V3 (and hence the larger structure of '4/3') line up at the same pitch (and axis) level.

Similarly in Figure 2-62, the harmonic major shares the same relationship of V5 to V6 with the diminished scale (shown in red).[27] This relationship can also be expressed as the larger '5/6' structure shown at the top of Figure 2-62.

The compounding of voicings in this manner, and observing the relationships of these compound structures between different scale sources, is a very useful way in which an improviser in a tonal music environment can identify alternate pitch collections to use in a functional chord progression in order to broaden his or her vocabulary and yet still retain the functionality of the progression. A close look at the pitch collections in Figure 2-62 will reveal that each of the scales indicated (harmonic major, melodic minor, and diminished) shares a large majority of their respective pitch collections with the others.[28]

However, while the compounding of voicings (as shown in Figure 2-62), shows a deeper entrenchment of the voicing levels of various scales into one axis location (in this

[27] V5 to V6 relationship in the diminished scale is shown clearly in Figure 2-33.

[28] There is an interesting discussion and graphic representation of the geometry of relations between closely related pitch collections in:
Dmitri Tymoczko, *A Geometry of Music: Harmony and Counterpoint in the Extended Common Practice* (New York: Oxford University Press, 2011), 132-136.

case, the green axis), it does nothing towards resolving the problem indicated earlier in Figures 2-58 to 2-61 where the discrepancy across two axes might create problems in plotting progression across chromatic space using the system outlined thus far in this document.

Resolution of Axis Discrepancy

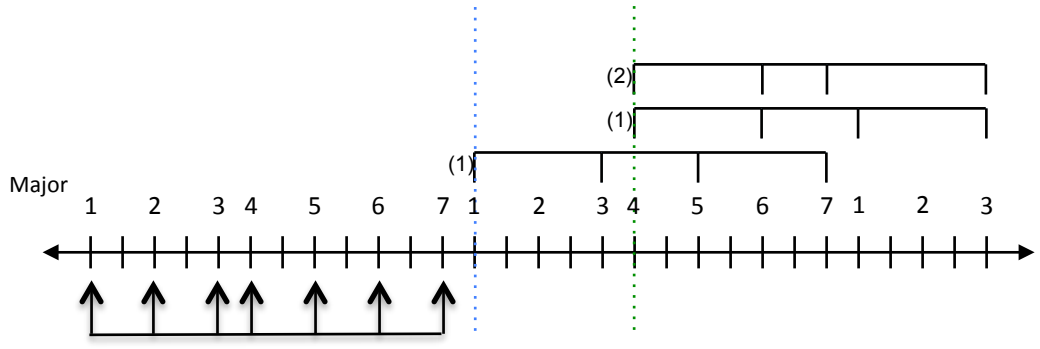
The key to resolving the aforementioned discrepancy is to not resolve it. As one moves away from traditional diatonic-centred key-based systems, the focus shifts from movement within a key area to the movement *between* key areas. The green/blue discrepancy outlined above, exhaustively investigated earlier, is indicative of the movement *within* the diatonic system. As one moves out toward a more chromatic background, the entire diatonic system is brought along, including much of its internal workings. So the idea that movement into a chromatic background is just the intersection of disparate and diatonically unrelated scales moving arbitrarily through some progressions is a rather incomplete view of the demonstration attempted here.

Earlier in Figure 2-57, the idea was introduced of a scale being reduced to a voicing (or two, or three) with the possibility of any of the scale notes being used as a bass note.[29] This is similar to the scale being reduced to a voicing with seven different bass notes, or 'inversions. If one refers to Figure 2-63, the major scale is shown with its

[29] To be clear, this idea is not new; it has been around for a long time.

voicing and bass note possibilities, along with its blue-green discrepancy of voicing locations (shown by the now-familiar vertical dotted lines).

Figure 2-63



If this scale represents C major, then the chord found on the sixth degree, for example, would have the 6th ('A') in the bass, and one of the three available voicings situated above the bass note. But which one? The answer is *all of them*, but it all depends on what one is trying to do. It also depends on the functionality that one is trying to express.

This is very much the improviser's mentality, which is not so much one of "What is it?", but "What can I do with it?" or "Where can I take it?". The improviser's concern is one of *possibility*, so leaving the options open creates more possible pathways, as opposed to *nailing it down* and limiting the number of those possibilities. This is an important concept to carry forward and will become obvious when an analysis of some of Wheeler's music is presented.

The Minor Tetrachord or 'The Walk-down'

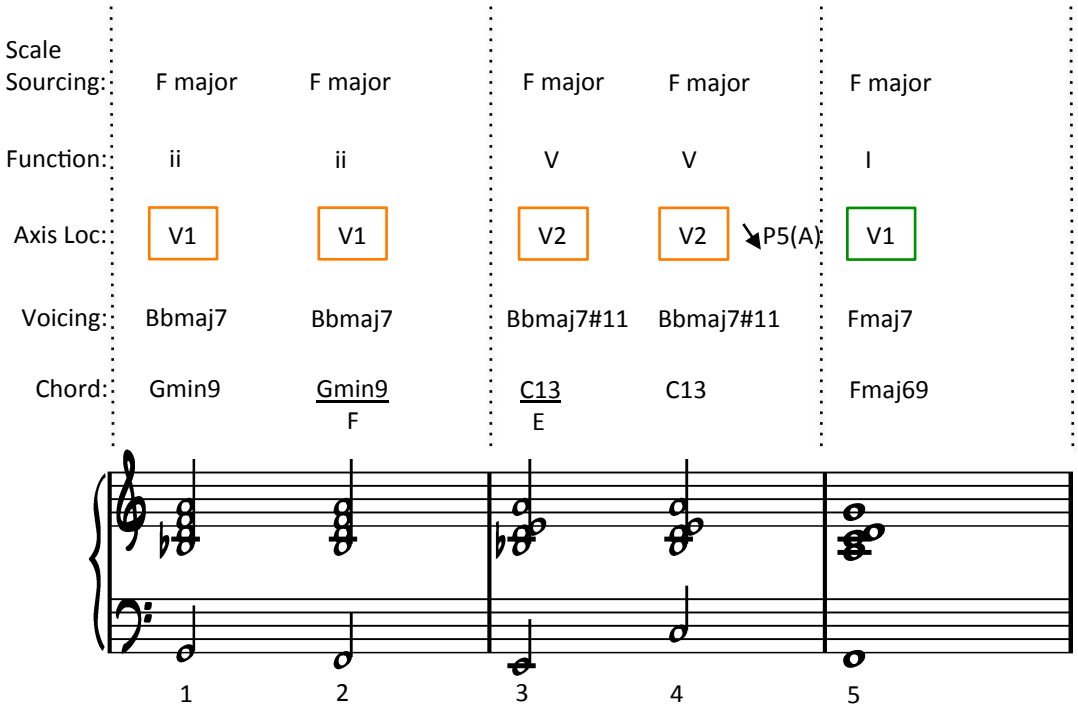
One more aspect of tonal progression that must be examined from a voicing perspective before proceeding to the analysis is what I call the 'walk-down'. It is a series of chords built on a concept that is extremely common in music and has documented origins that go back to the Renaissance.[30] There are several ways to look at this, but basically it is a downward movement in the bass from the tonic in a minor key towards the 5th (either step-wise, chromatically, or a mixture of both), with what looks at first glance to be a stationary harmonic shape suspended above the bass motion.

Wheeler has utilized this device in a number of curious ways through the period examined here and it is important to get a perspective on it in terms of the voicing-based approach that is the central to this paper. The next few examples will also familiarize the reader with some of the methodology that will be used in the upcoming analysis. They begin simply, but soon expand.

The simplest example of this 'walk-down' affair is shown in Figure 2-64, and is really just the stretching out of a ii - V - I in the key of F major.

[30] An early example of this idea can be found in an aria from Henry Purcell's opera "Dido and Aeneas" dating back to the 1680s, but in all probability, the concept is older.

Figure 2-64.

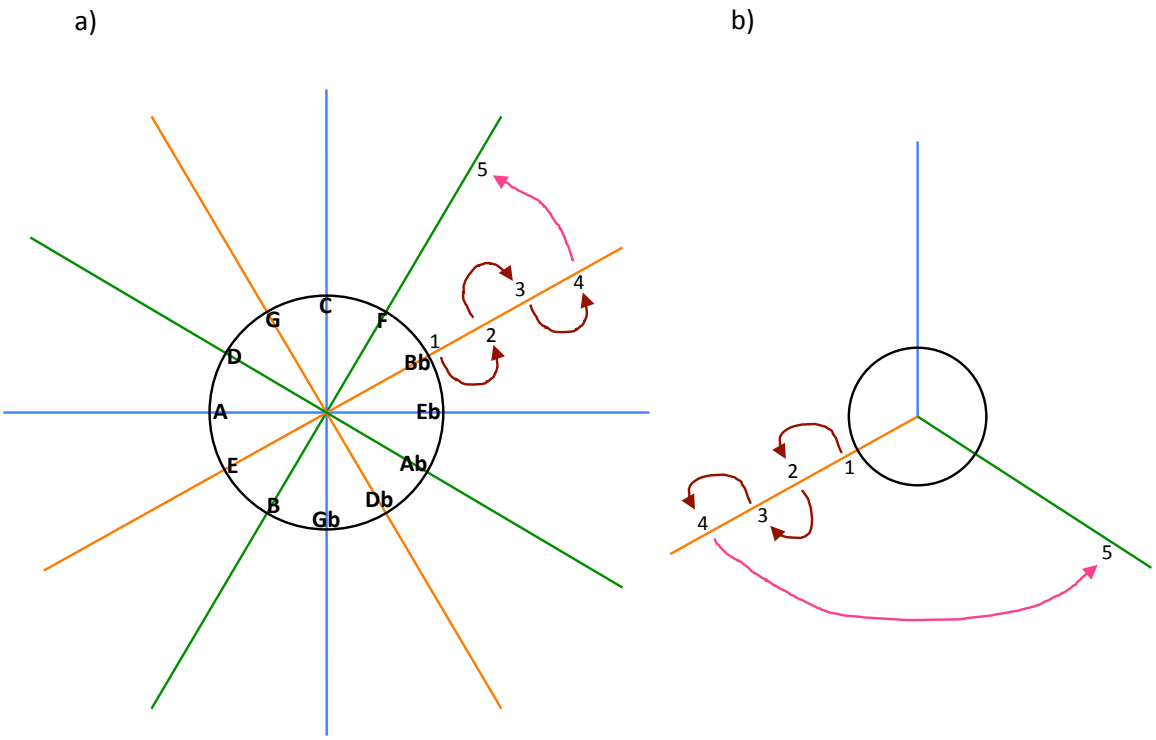


The overall progression is ii - V - I in F major with chords '1' and '2' (labeled at bottom) being just different aspects of the ii chord (Gmin9, and Gmin9 with the 7th in the bass). Absolutely nothing changes between these two chords except the bass note moves from G to F. All other aspects (scale sourcing, function, voicing and axis location, and even the chord symbol itself) are identical. At chord '3', the function changes to V (dominant from sub-dominant) and the actual voicing changes from V1 to V2, but the voicing pitch level, the scale sourcing, and the axis location are unchanged as the root movement goes from the 3rd of the V chord up to the root. Progressing to the I chord,

there is a difference of the voicing type, as well as the voicing pitch level and axis location, moving from orange to green in a Movement A as indicated by the pitch level arrow between the orange and green voicing indicators of chords ‘4’ and ‘5’.

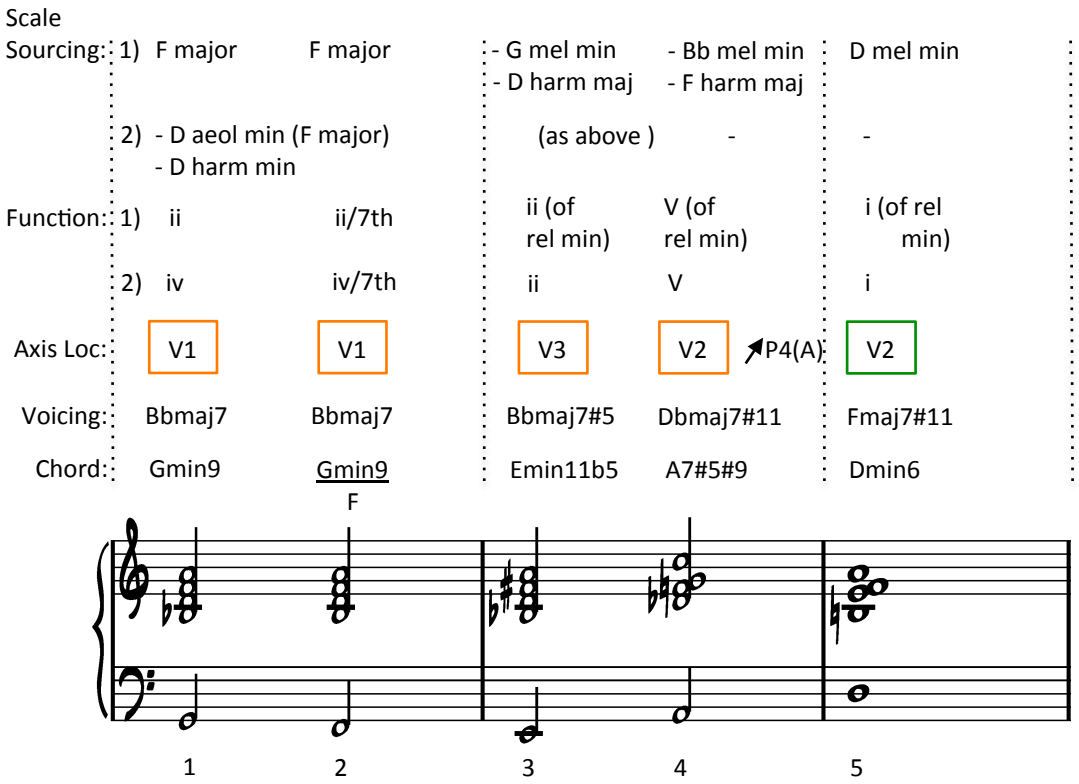
Figure 2-65 plots the progression on both the twelve-point and three-point axis diagrams according to the indicator numbers below the staff in Figure 2-64.

Figure 2-65.



Again, as seen earlier in Figure 2-48, this is quite a simple example that doesn’t move out of the scale of F major, so these two diagrams are almost identical.

Figure 2-66.



In the example in Figure 2-66, there are actually two different scenarios shown in terms of function (indicated by scale sourcing 1 and 2, and function 1 and 2) but they are otherwise identical. In the first bar, chords '1' and '2' proceed identically to the previous example, at least with regard to scale sourcing 1 and function 1. Continuing to chords '3' and '4', there is a ii - V toward the relative minor instead of the first inversion V chord moving to root position as shown in the previous example. Noteworthy is the fact that chord '3' has the same voicing pitch level (although a different voicing, V3 instead of V2) as its counterpart in the previous figure. Also, chord '4', while moving to a different pitch level, remains on the orange axis and so remains functionally equivalent. The scale

sourcing for chords '3' and '4' however, have changed significantly. The V3 at the level of B^b in chord '3' is found on the flat third degree of G melodic minor and also at the flat sixth degree of D harmonic major.[31] The movement from chord '4' to chord '5' is the same as the previous example in that it moves from orange to green to outline a Movement A cadence, but here the pitch movement is up four semitones instead of the previous example's down five semitones. The final chord, although now a i chord in D minor, still uses the voicing at pitch level 'F' and so remains unchanged in terms of voicing level.

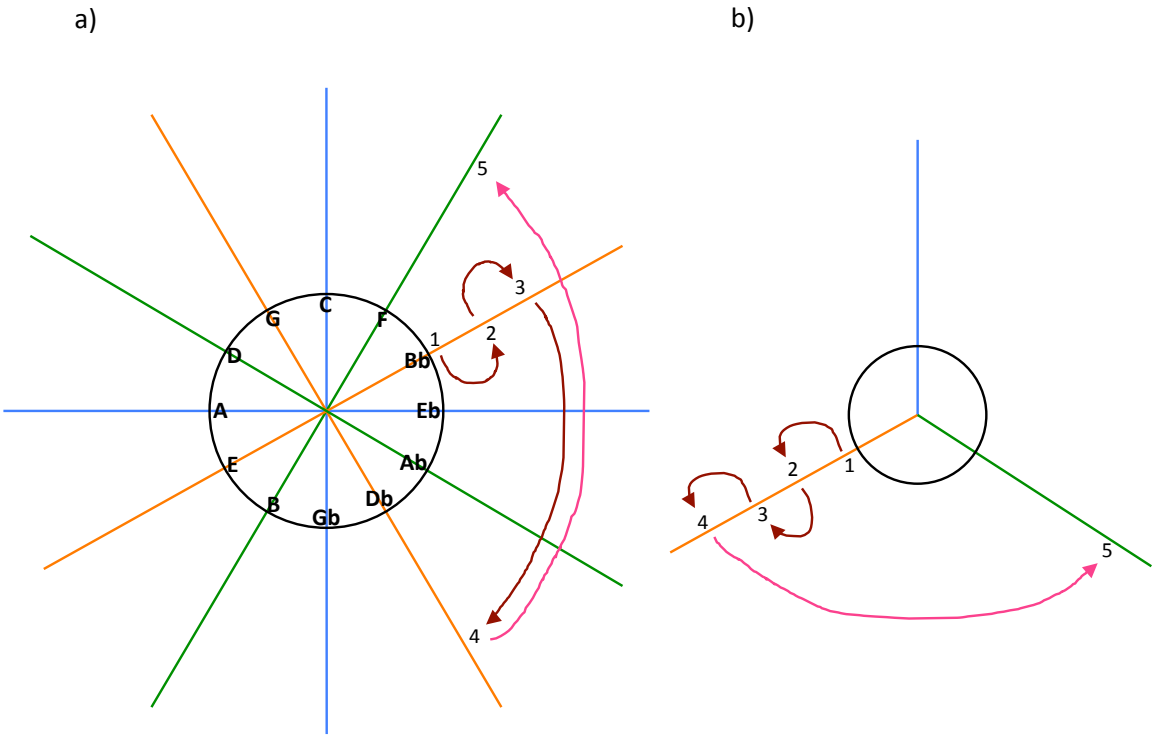
The second example in Figure 2-66 is indeed identical to the first, with the exception of function and some scale sourcing. Instead of looking at the progression starting on the ii chord in F major with the bass moving down through the 7th of the ii chord to then suddenly modulate to the relative minor (D minor), the second example begins in D minor already (starting on the iv chord). This proceeds through the same B^b level voicing in chord '2' with the bass moving down through the 7th, and onward through the ii - V to D minor. It's a subtle difference, but it creates a progression *down from the iv* in a minor key rather than starting in the major and then moving to the relative minor part way through. The different scale sourcing of chords '1' and '2' in scale sourcing 2 is due to the fact that we are thinking in D minor right from the beginning, but also interesting with respect to the scale sourcing is the emerging connectedness of

[31] Note: The F# in the voicing negates the sourceability from b6th degree of D harmonic minor, but would have been possible using V2.

harmonic major and melodic minor in the same relationship as was shown back in Figure 2-62.

Plotting these examples on the two axes again below in Figure 2-67, one can see a picture that is in some ways different, but in other ways exactly the same.

Figure 2-67.

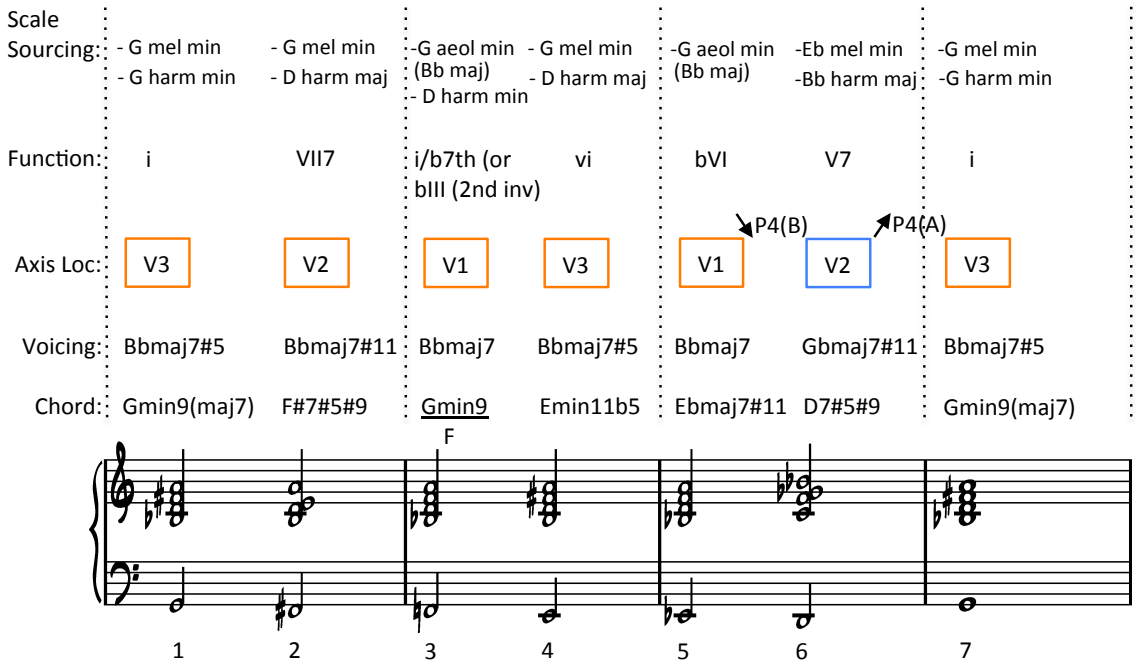


This picture is the same as that shown in Figure 2-65 with the exception of the movement in Figure 2-67a of chord '4' from the '$B^{b'}$ pole to the '$D^{b'}$ pole. Still on the

orange axis and functionally equivalent, this movement is not shown in Figure 2-67b which is identical to Figure 2-65b.

This progression has been discussed from the perspective of starting on the ii of major, as well as coming down from the iv of minor. This next example is from the i of minor, bringing into view the chromatic bass note that fills in the whole tone between the first two chords in the examples presented thus far. This chord, while resembling a dominant7$^{\#5\#9}$, behaves more like an augmented sixth chord moving to a second inversion major.[32] This progression is shown below in Figure 2- 68.

Figure 2-68.

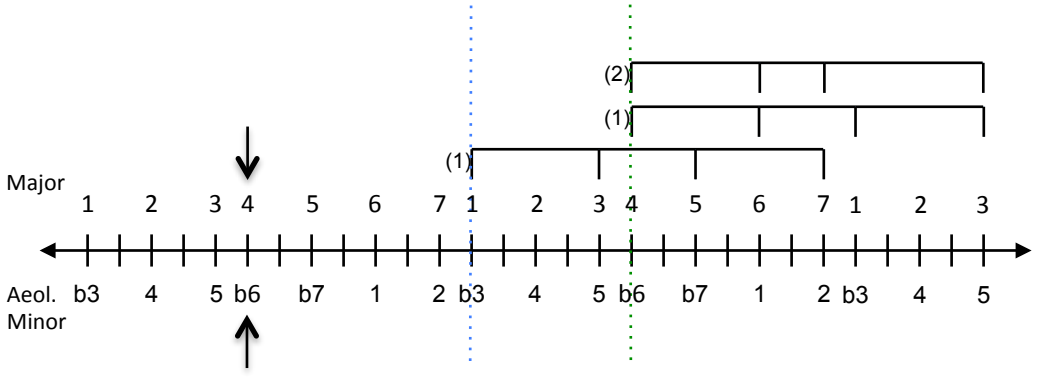


[32] Proctor, "Technical Bases," 118-119.

Here the first chord has now been changed to Gmin9^{maj7} to reflect its tonic character, although it could easily have been Gmin$^{6/9}$ as well. The chord labeled '2' is a dominant7$^{\#5\#9}$ formed by keeping the B^{b} voicing and moving the bass from the first to the seventh degree of G melodic minor. In order to ensure that this chord sounds, V2 is necessary in order to have the 7th in the chord, although V3 is also useable if the 7th is added below the voicing. Chords '3' and '4' are unchanged from previous examples, but chord '5' is worth noting.

Chord '5' harkens back to the discussion around Figure 2-63 and the voicing discrepancy within the major scale in particular (although this situation exists also in the harmonic major and harmonic minor as well). In this instance, the scale sourcing indicated for chord '5', is either G aeol minor or Bb major. They are in fact the same pitch collection. Figure 2-69 shows these two scales juxtaposed along with their voicing possibilities and an arrow pointing to the bass note of the chord in question.[33]

Figure 2-69.



[33] In fact they are not 'two scales'; one is a mode of the other.

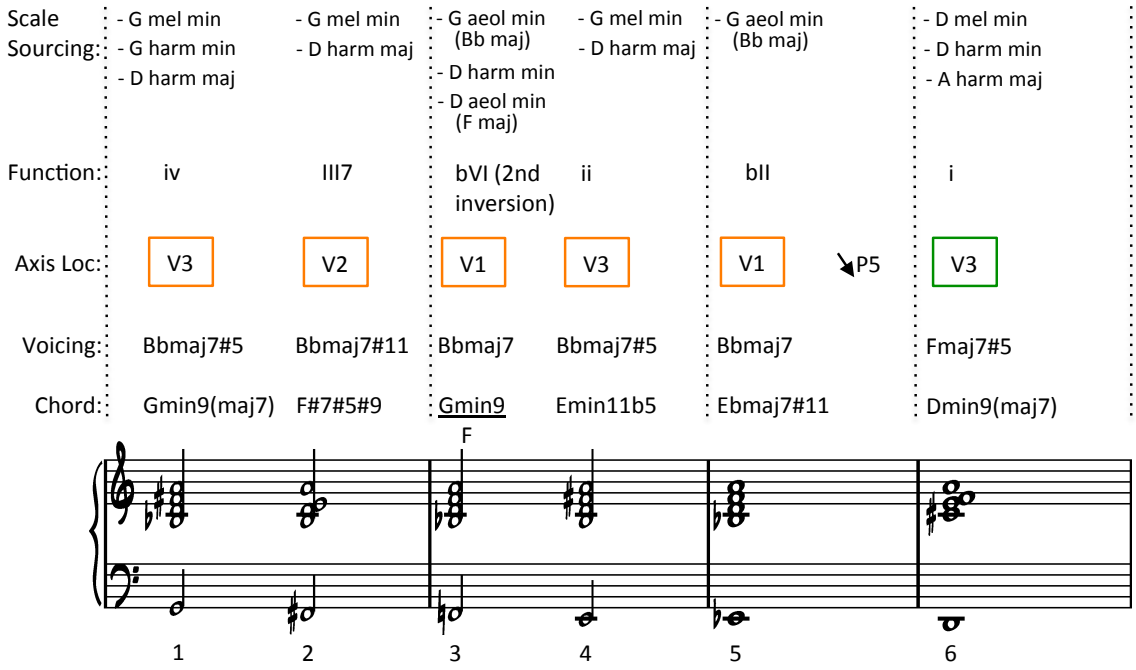
In the progression shown in Figure 2-68, the chord symbol indicated for chord '5' is Ebmaj7$^{\#11}$. So in Figure 2-69, if the major scale (as indicated in the 'scale sourcing' section of Figure 2-68) is Bb major, then why not just take V2 from the 4th degree (Eb) and put it over the bass note Eb (indicated by the arrow above the 4th degree of the major scale shown in Figure 2-69)? Why use the Bb voicing V1 found on the 1st degree?

Well, perhaps the key is not Bb, but G minor where the Bbmaj7 voicing is the only thing providing stability through the labyrinth of possible scale sourcing that comes with this deceptively simple progression. The important thing to take from this is that things are not always what they seem on the surface, and that looking at them from a different angle may yield not just more variety, but more fruitful results depending on the situation. In this instance it can be more valuable to treat this chord as a V1 on the $^{b}3$ of natural minor (aeolean) with the $^{b}6$ in the bass instead of a V2 on the fourth degree of major with the 4 in the bass.

Chord '5' proceeds to chord '6' in a Movement B type voicing progression to the V chord that then proceeds to the i chord (chord '6') with a Movement A type resolution.

Figure 2-70 contains one more example derived from this system similar to the previous one except this time, instead of descending chromatically from the i chord down to the V and cadencing back to the i, the progression descends chromatically from the iv chord down toward the i chord.

Figure 2-70.



With the exception of the function indications (down chromatically from the iv), this progression is anatomically identical to the previous one (Figure 2-68) up to and including chord '5'. However, the scale sourcing continues to expand, due here to the viewpoint of this progression as seen from D minor (as opposed to the previous one in G minor). D harmonic major is now added as a sourcing of the iv chord $Gmin9^{maj7}$ (chord '1'), and D aeolean minor (F major) is added as a source for chord '3' (due again to the D minor tonic perspective of this example).

But it is chord '5' again that is the interesting one. In the previous example this chord was ^{b}VI in G minor, moving to V in a Movement B motion and on to the tonic in a Movement A. If the voicing used for chord '5' in the previous example had been

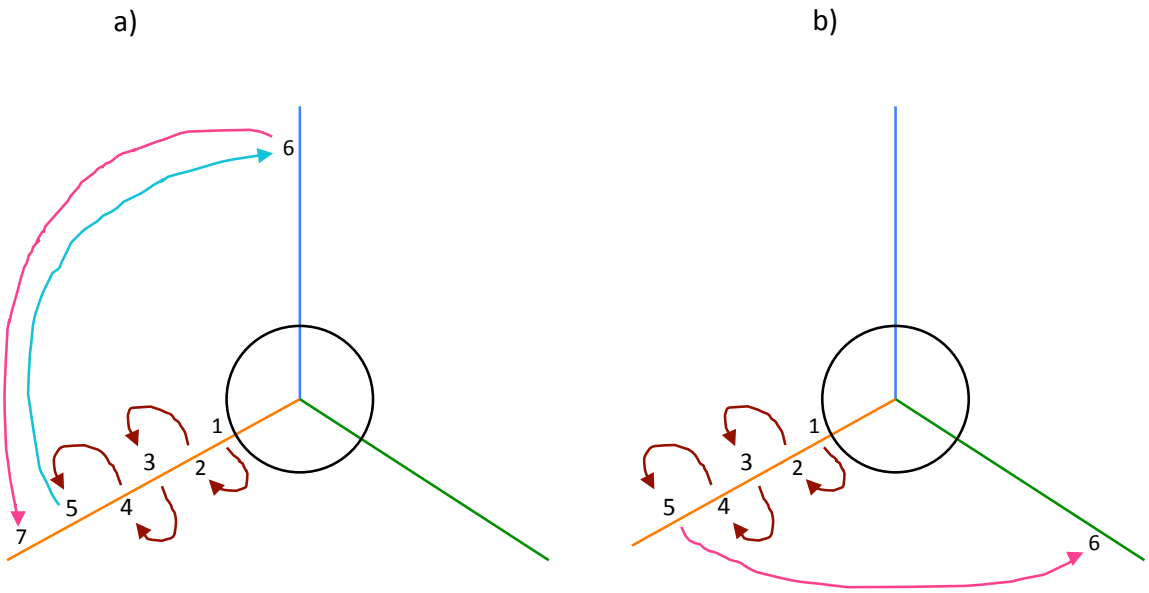
Ebmaj$^{\#11}$ (V2), then the movement to the V chord would have been a Movement C and therefore no functional movement. This would have been analogous to a ii - V, and therefore perfectly appropriate to precede the i chord in that instance. Here (back to the most recent example), however, if one employs the Eb 'V2', the motion to the tonic (chord '6') would be a Movement B (blue-to-green) and not necessarily as appropriate a movement to the tonic as the Movement A indicated in the example.

This ^{b}II chord is indeed identical to the nineteenth century Neapolitan chord which has been justified in the literature as being derived from the flat sixth degree of the IV minor, just as it is here (the B^{b} level voicing as part of G minor, with the ^{b}6 in the bass).[34] Only with the voicing built on the fifth degree of the Lydian chord (chord '5' here) does one get the appropriate Movement A resolution to the tonic chord.

The graphic representations of the last two examples on the three-point axis diagram can be seen below in Figure 2-71 'a' and 'b'. They are the progressions found in Figures 2-68 and 2-70 respectively.

[34] Proctor, "Technical Bases," 98-101.

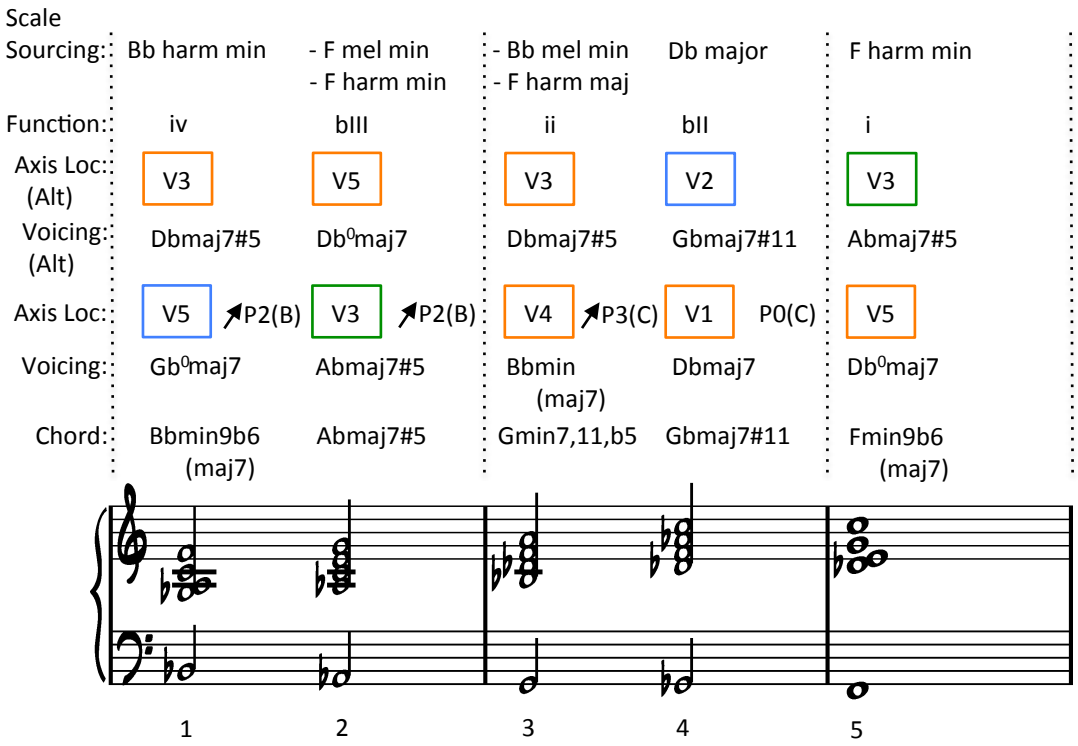
Figure 2-71.



The preceding examples are meant to outline a process of analysis, and also to format a process of comprehension, for what is next. Figure 2-72 shows an example of this 'walk-down' progression taken directly from one of Wheeler's compositions. This example combines the *voicing axis discrepancy* problem discussed earlier, with the multiple-voicing availability on the $^{b}6$ level of 'harmonic' scales, and the variety of improvisatory and/or compositional pathway options available through the embracing of the multiplicity of options. It shows very well the 'shell game' of multiple levels of tonal activity that exist in Wheeler's compositions of this period.

This example is not in the same key as previous examples due to the range of pitch level of some of the voicings involved, but it retains the same basic axis structure (oriented around the orange axis).

Figure 2-72.



The chord symbols used in the example above are Wheeler's. However, the voicings, although based on his written indications (when he wrote them, which was not often) are my own, and are deliberately written simply. Also, the way this example is laid out differs slightly from previous ones in that here has been added an 'alternate' level

of voicing. This often (but not always) reflects the voicing axis discrepancy involved in sourcing voicings from scales containing this discrepancy (Figures 2-58 to 2-61).

The first chord (labeled '1' below the staff) is based on the B^{b} harmonic minor scale with the tonic in the bass and the voicing built on the flat sixth degree (V5). Wheeler uses this chord often and it will come up in different situations. Here, it is a replacement for the iv chord shown in the previous two examples (min9 with a maj7), and is labeled as minor even though it has no 3rd. In some ways it resembles an $F7^{b9}$ chord with the tonic (B^{b}) in the bass, like a suspended chord in a delayed V-I resolution. The 'alternate' voicing above the first is the regular V3 found on the flat third degree of the B^{b} harmonic minor scale. Using this 'alternate' voicing would yield the same starting chord of the previous two examples.

The next chord skips over the chromatic step shown in the previous two examples and goes straight to the next step in the same manner as the examples shown in Figures 2-64 and 2-66. The chord here, however, is quite different from those in previous examples. It would seem that instead of retaining the usual methodology of the progression (that of retaining the original voicing level while the bass moves down through toward the b6), Wheeler has just moved down from the iv to the ^{b}III chord diatonically in the key of the progression (F minor). The voicing (V3) found on the tonic melodic/harmonic scale is just used with the bass note of the voicing level itself. This is completely plausible and highly probable, but there is a subtext (entirely speculative on my part, yet interesting in regards to the usual strategy of this progression).

Using the scale sourcing found above the chord in question (chord '2'), the scale of F harmonic minor contains the voicing Abmaj7#5 (V3) on the level of $^{b}3$. Yet it also contains the voicing of Db^{0}maj7 (V5) at the level of $^{b}6$. Both of these voicings contain the C major triad necessary for the character of this progression, and although we will never know the actual thinking of Wheeler in conceiving this passage, it is interesting that the voicings listed for chords '1' and '2' in the alternate voicings section of this example preserve the usual procedure of retaining the same voicing level through this progression.

Proceeding to chord '3', this is the same chord as was used in the previous examples, and the alternate voicing provided here (V3) is actually the voicing that has been used up to now in the previous examples. The only reason that V4 is used here on the lower voicing level is to accentuate the upward movement of voicing level by whole tone through the first three chords in this example. Both of the voicings used here for chord '3' are interchangeable and totally equivalent across the scale sourcing indicated. [35]

Chord '4' brings the discussion back to the previous one concerning the voicing duality on the maj7$^{\#11}$ chord and the Movement A or B considerations concerning the Neapolitan chord. The other voicing in question is included on the alternate voicing level.

Chord '5', which is the tonic in this system, is anatomically the same chord which began this example; the voicing sourced from harmonic minor on the $^{b}6$ with the bass

[35] There is a case to be made for investigating V1 or V3 at pitch level 'F' for this chord, but there is enough going on here already.

note on the tonic. We looked at the 'suspended' nature of this chord and how it behaves like a $C7^{b9}$ with the tonic (F) in the bass has already been examined. What is interesting is that upon arrival at the tonic, this V5 at pitch level 'D^{b}' is the very same pitch level retained through the entire progression, with *no movement* into the tonic. This is not speculation on my part. This is Wheeler's voicing on the lower 'foreground' voicing level, with my own speculative Ab V3 in the alternate (background) level. It is the background (upper level) voicing that provides any kind of Movement A cadence into the tonic chord from the 'foreground' (lower level) voicing of the previous chord (chord '4'). And yet, an examination of the background (upper) voicing for chord '4' (V2, blue) to the foreground (lower) voicing for chord '5' (V5, orange), reveals a Movement A cadence into the tonic.

Referring back to the improviser's questions posed earlier, one could ask, "What can I do with it?" or "Where can I take it?". With reference to the two levels (lower and upper) of voicing material shown in the last example (Figure 2-72), many pathways can be traced through this progression. Here are four of them plotted on the three-point axis wheel in Figure 2-73:

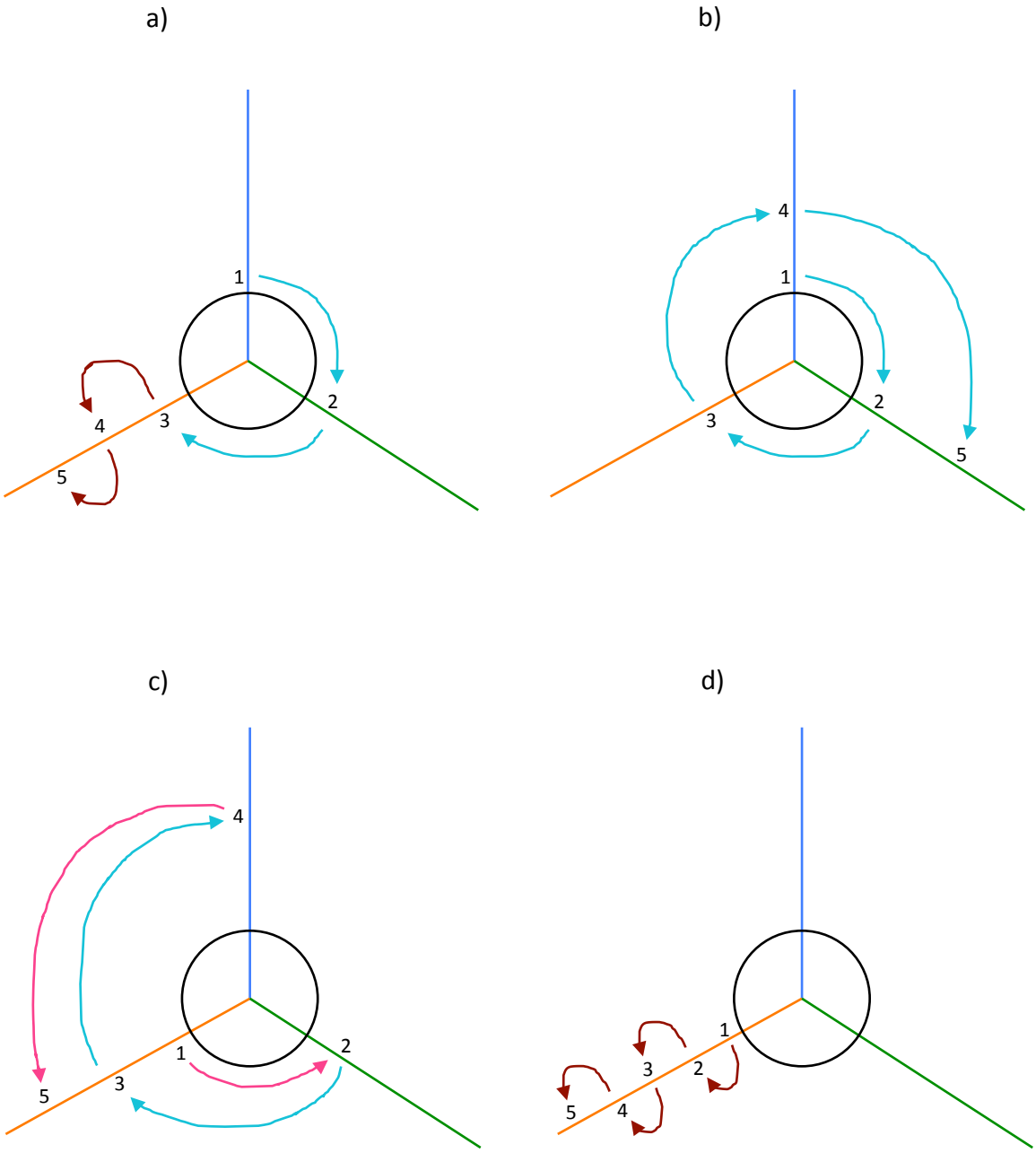
a)– straight across the bottom level.

b)– chords '1' through '3' from the bottom, and across to top for '4' and '5'.

c)– top for '1', bottom for '2' and '3', top for '4', and bottom for '5'

d)– top for '1' through '3', and bottom for '4' and '5'.

Figure 2-73.



These four diagrams look like four completely different progressions, each with their own trajectories and functional movements, yet they are all aspects of one progression with many layers of functionality bound up inside on multiple levels. This represents movement toward a chromatic background in that through the use of familiar voicings in the context of already familiar functional progressions, but sourcing them from unfamiliar locations (while combining them with root movement from these unfamiliar locations) produces an extended harmonic language with many layers of progression, yet still within a tonal system and subject to all the rules governing that tonal system.

PART III: Analysis of Wheeler's Music

The Tunes

The two pieces chosen to illustrate Wheeler's compositional tools were written in the years between 1975 and 1983.[36] The first is called "Sumother Song", which was released on *Deer Wan* (ECM 1102) on January 1, 1978 .[37] The second is "Three for D'reen", released on *Double, Double You* (ECM 1262) on January 30, 1984 (recorded May 1983).[38]

This is the period when Wheeler did his most overt experimentation with the layering of tonal centres in the manner illustrated in Figure 2-72. After this period, he reduced the degree of density, but continued with the experimentation.

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[36] : "Sumother Song" was first released on *Deer Wan* (ECM 1102), recorded in July 1977. One would assume that the music was written just prior to the recording, but the possibility does exist that it predates 1975. However, this author feels this is unlikely due to the fact that the music on *Deer Wan* all hangs together stylistically in a way that differs from the previous recording *Gnu High* (ECM 1069) which was recorded in June 1975. The type of harmony used in "Sumother Song", while matching up with the other music on *Deer Wan*, also points forward to techniques used subsequently over the next dozen years.

[37] According to www.ecmrecords.com/catalogue

[38] Recording dates are according to *The Jazz Discography*. Release dates are according to ECM Records Catalogue.

Explanation of Graphic Analysis Formatting

The graphic formatting for the analysis is similar to that introduced earlier with "Naima" (with a few differences in what information is indicated, and how it is indicated). Each analysis will begin with Wheeler's own hand-written lead sheet for reference.

Chord symbols are located within the music staff, and are Wheeler's unless otherwise indicated.

Immediately above the staff is the main voicing information based on Wheeler's given chord symbols (in the case of "Sumother Song", his written figures). The voicings are given in terms of a chord symbol, above which is shown the voicing number (V1-V6) contained in a box colour-coded to its axis placement according to the process laid out already in this document.

The next line above the 'Voicing' level is labeled 'Alt. Voicing' and indicates (where significant) the other voicing available through the voicing duality discussed previously (in the section titled "Other Points to Consider: Diatonicism towards Chromaticism").

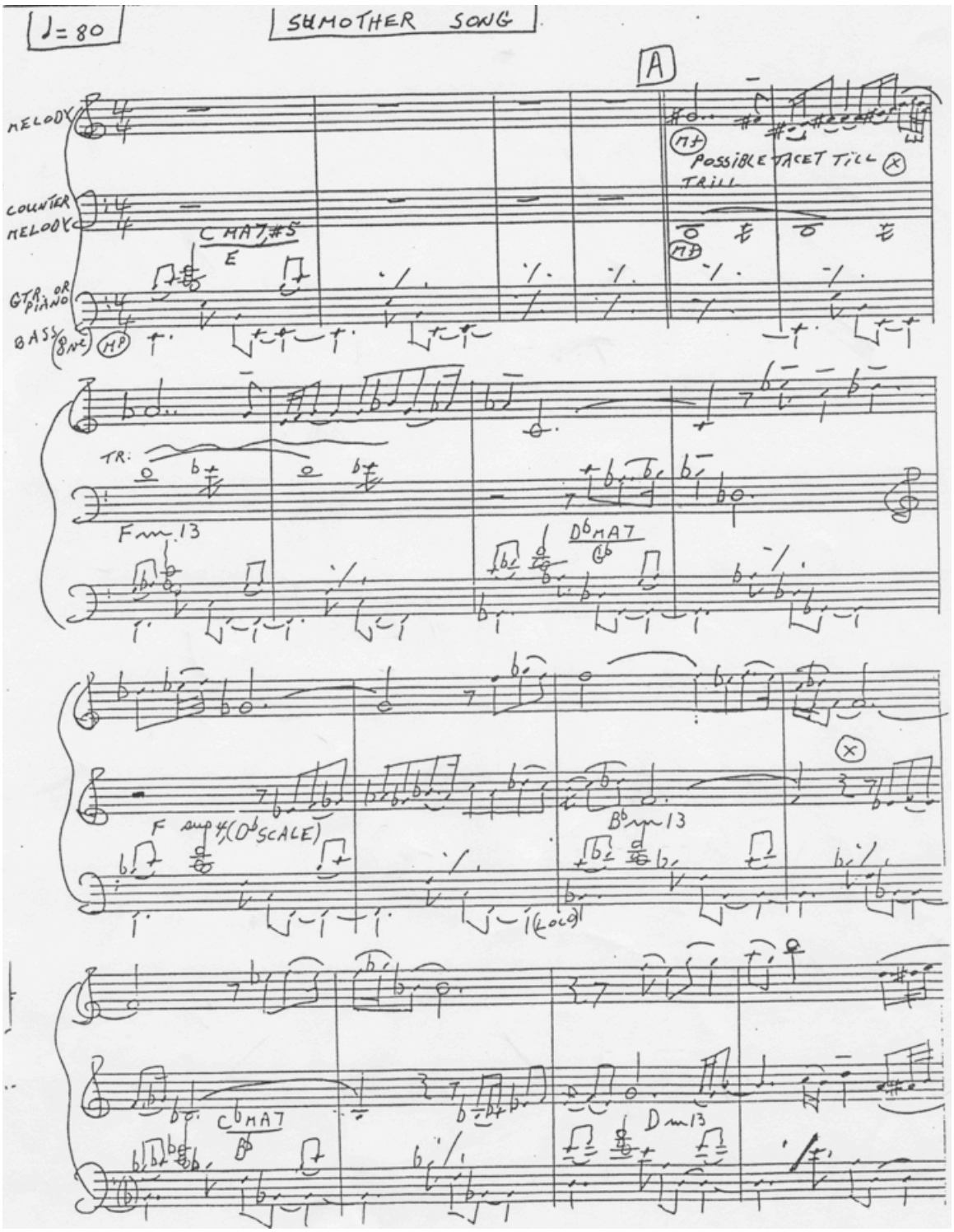
In both rows of voicings (regular and alternate) the pitch level changes of the voicings, along with their functional movements (A, B, or C), are indicated with a symbol containing first an arrow indicating direction (up or down) followed by a 'P' (pitch) and a number (semitones). The larger dotted arrows with direction/pitch/function symbols overlaid upon them indicate the movements when crossing back and forth between the

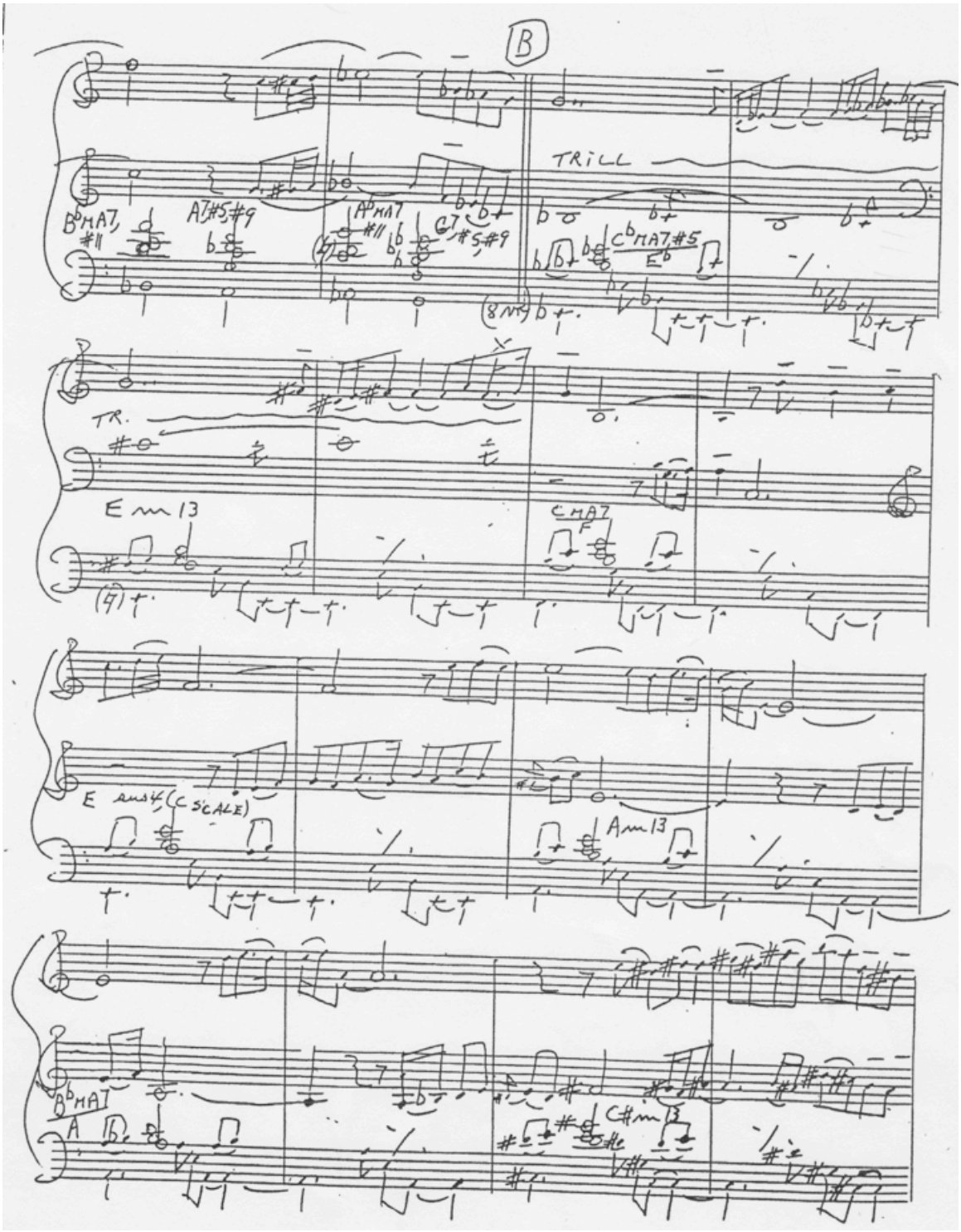
'Voicing' row and the 'Alt. Voicing' row in the direction indicated by the large dotted arrow.

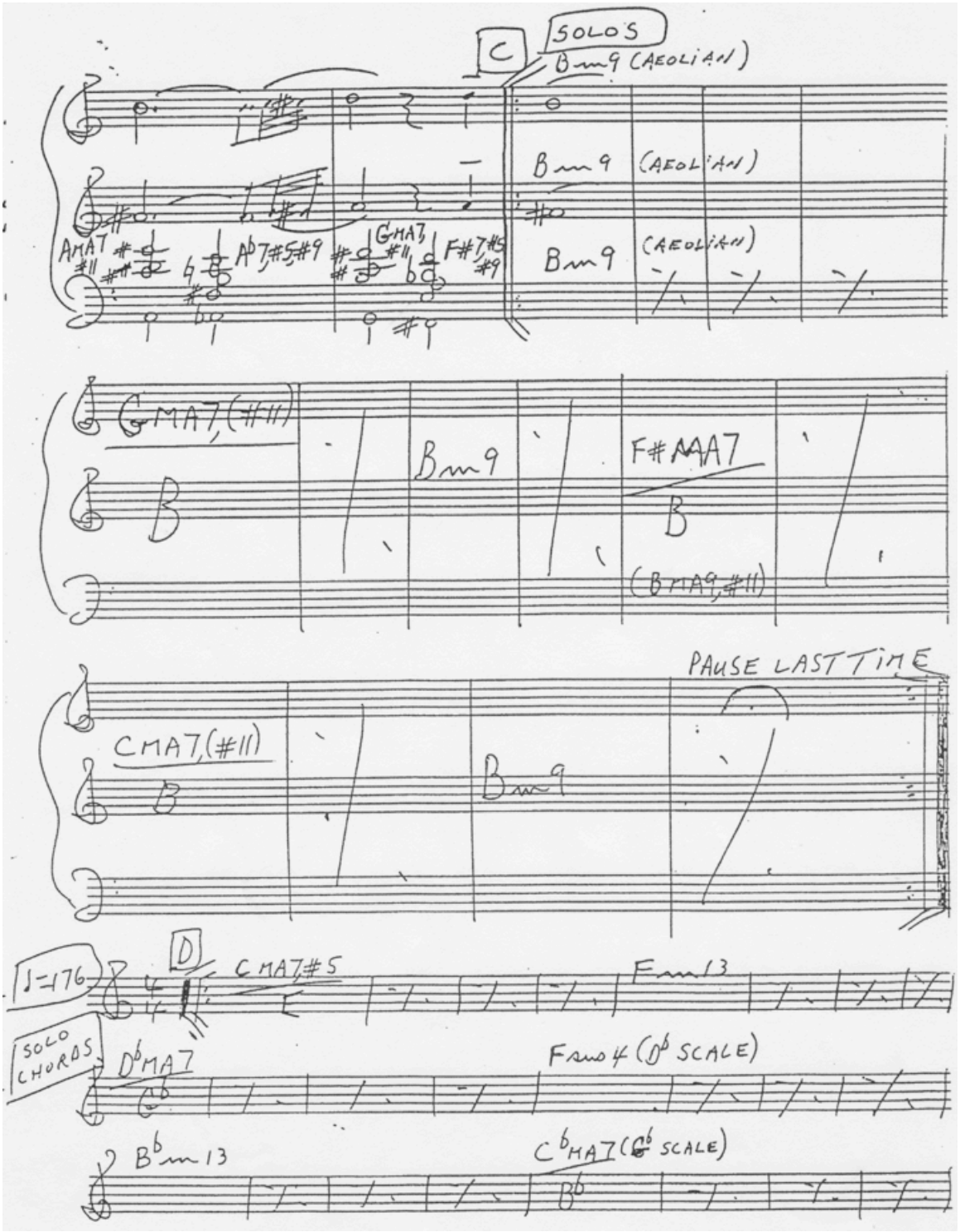
Above this, the melody is shown using numerical level in the key or scale. To avoid confusion, some basic guidelines are followed. A minor 3rd in a scale is always referred to as '^{b}3' even though it is the 3rd of the scale anyway. '3' always means the major 3rd. Similarly, '7' always means the major 7th as opposed to '^{b}7', and '6' always means major 6th as opposed to '^{b}6'.

Finally, below the staff are sequential numbers to be used to plot voicings on the axis diagrams already in use.

"Sumother Song"




B
TRILL
BbMAJ #11
A7#5#9
AbMAJ #11
C7 #5#9
CbMAJ#5
Eb
(8VA)
TR.
Em13
CMAJ
E
(C SCALE)
Am13
BbMAJ
A
C#m13


C
SOLOS
Bm9 (AEOLIAN)
Bm9 (AEOLIAN)
AMAJ
Ab7#5#9
GMAJ
F#7#5
#9
Bm9 (AEOLIAN)
GMAJ7(#11)
Bm9
F#MAJ7
(BMAJ9,#11)
PAUSE LAST TIME
CMAJ7(#11)
Bm9
D
♩=176
CMAJ7#5
Fm13
SOLO CHORDS
DbMAJ7
Fm9/4 (Db SCALE)
Bbm13
CbMAJ7 (Gb SCALE)

On the original recording the opening of "Sumother Song" begins with guitar alone, playing a figure using the note grouping of B, C and E, which is easily recognizable as a Cmaj7 voicing without a 5th. Although Wheeler's lead sheet indicates an E natural in the bass off the top, the recording begins with only the guitar, playing what alone sounds like a Cmaj7 chord. At letter 'A', the bass and melody enter at the same time, altering the perceived tonal centre significantly.[39] The E natural in the bass combines with the partial Cmaj7 to produce something resembling an E aeolean sound, but the G# in the melody, producing the chord indicated by Wheeler's symbol of Cmaj7#5 (V3) with E in the bass, negates this in favour of something that resembles 5th mode of melodic minor.[40]

As the melody progresses to bar 2 of letter 'A', the note $D^{\#}$ planted firmly on beat one is an indication that this is not a situation that is derived from 'A minor' as a diatonic system. This is a tonic chord in the local key of E major, as exhibited by the scale of E harmonic major.[41] The Cmaj7#5 voicing (V3) is found on the flat sixth degree of 'E harmonic major', with the first degree of the scale in the bass.

The first four bars of letter 'A' are shown in graphic format in Figure 3-1.

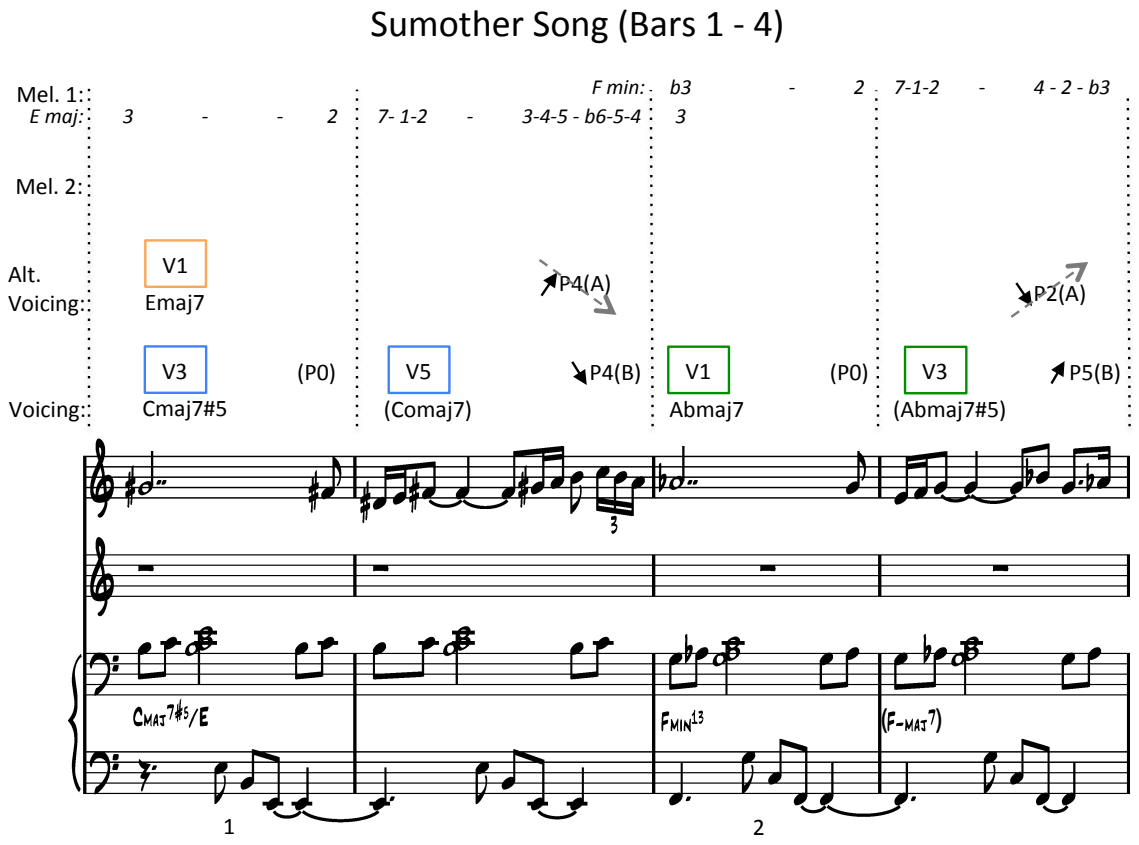
---

[39] The rhythmic ambiguity here is also notable, but this discussion is primarily concerned with the harmony and tonal aspects of the piece.

[40] Without the reference point of the harmonic major scale, this chord would be seen as V3 (found on the $^{b}3$ of melodic minor) with the 5th note of the scale in the bass (in this case 'A' melodic minor).

[41] See Figure 2-62 for a picture of the relationship between "A melodic minor" and "E harmonic major".

Figure 3-1.



The melody continues from the $D^{\#}$ on beat one of bar two of letter 'A', to a held $F^{\#}$ which combined with the $D^{\#}$ on beat one, gives a kind of a prolongation of E major by hinting at its dominant. This is incorporated into the voicing indicated in bar two of the above diagram as a C^{0}maj7 (V5) to show that in terms of overall functionality, nothing has changed from the previous bar (1).[42] The Emaj7 voicing indicated in the 'Alt.

[42] This is my own construction and has no indication on Wheeler's lead sheet.

Voicing' area in bar one is the 'alter ego' voicing derived from the first degree level of 'E harmonic major'.[43]

Moving into bar three (or, the chord labeled '2' at the bottom of the diagram) the voicing movement from the blue axis Cmaj7 voicing(s) to the green axis 'A^{b}' level voicing is indicated as a Movement B type cadence. However, the 'background' Emaj7 voicing moves to the 'Ab' level voicing in bar three with a Movement A type cadence.[44] This movement (whether considered a Movement A or Movement B) is significant in that through this method of looking at progression, this is a *functional* progression. It is as functional as V - I when looked at from the perspective of the voicings moving from Emaj7 to Abmaj7 (or $C7^{\#5\#9}$ as expressed as $Emaj^{\#11}$/C to Fmin as expressed as $Abmaj7^{\#5}$/F).

With regard to the melody, the main shape and content of the melodic content remains unchanged from the harmony in bar one to that of bar three. The '3-2-7-1-2' content is unchanged except for the $^{b}3$ in bar three due to the minor quality of the chord.

It is interesting that Wheeler's chord symbol for bar 3 is Fmin13. This I believe is due to the D to E^{b} trill indicated in the counter melody line in the original Wheeler lead sheet, which does not appear at this point on the recording (hence its absence from the

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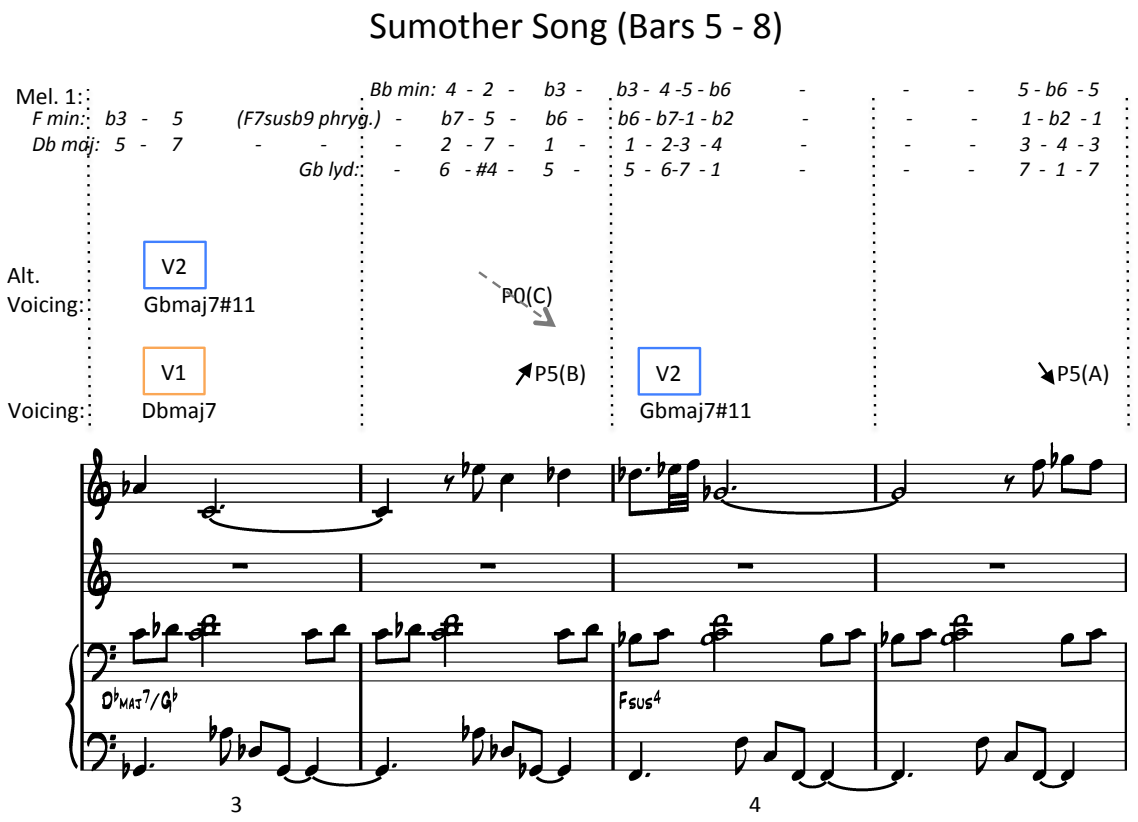
[43] See Figure 2-60 and the section titled "Other Points to Consider: Diatonicism Towards Chromaticism".

[44] The term 'background' when used in reference to these 'alternate' voicings is often relative. In this instance, this is hardly background when the tonality has been ascertained to be that of E major. Wheeler's indicated voicings are often those that would be considered more 'background' than the 'alternates.'

diagram in Figure 3-1), and is evidence that his intention for this Fmin is that of a dorian quality. The chord symbol in brackets shown in the diagram, similar to the bracketed voicing in bar two, is my own and not Wheeler's. It is to give similar attention to the '7-1-2' movement in the melody which outlines more of a V3 melodic minor approach (which, like dorian, also includes the natural 6th) with the addition of the major 7th. This in no way impacts its functionality.

Figure 3-2.



Moving to chord '3' (changing the reference to chord 'numbers' as indicated below the staff in Figure 3-2), the movement indicated from the green V3 voicing from the previous diagram (Figure 3-1, second bar of chord '2') to the main voicing for chord '3' (orange V1) is a Movement B. However, again Wheeler has used as his main voicing one that would normally be considered background. His chord symbol here is D^{b}maj7/Gb, which is not necessarily a normal expression of this chord. One might expect to see this expressed as Gbmaj$7^{\#11}$ (the voicing shown in the 'alternate' area above), but the chord symbol clearly states otherwise. However, the voicing movement from the previous green A^{b} voicing to the alternate blue 'G^{b}' voicing on chord '3' is a Movement A, and again indicative of *real function*.

In the guitar part, one can now begin to see the pattern of identical voicings (each omitting the 5^{th}) moving from pitch level to pitch level.[45] Chord '3', and Wheeler's choice of voicing is also interesting in another way. Referring back to the section called 'The Walk-Down' and Figure 2-65, there is a discussion about the chord labeled '5'. As part of the minor tetrachord system it functions as ^{b}VI maj$^{\#11}$, with the ^{b}6 in the bass, and the voicing built on the ^{b}3 of the minor system in question. Later discussion will attempt to determine if a B^{b} minor system is being employed here.

Chord '4' is the first chord encountered here that doesn't conform to the basic structure shared by all others. The structure indicated in the guitar part is not outlining a maj7th voicing. Instead, it has the effect of a 'sus2' voicing consisting of notes B^{b}, C,

[45] One of the reasons I chose this piece is because of the clear and deliberate manner in which this pattern is displayed. Even though Wheeler claimed to be unaware of his process, he obviously had some idea that this was going on.

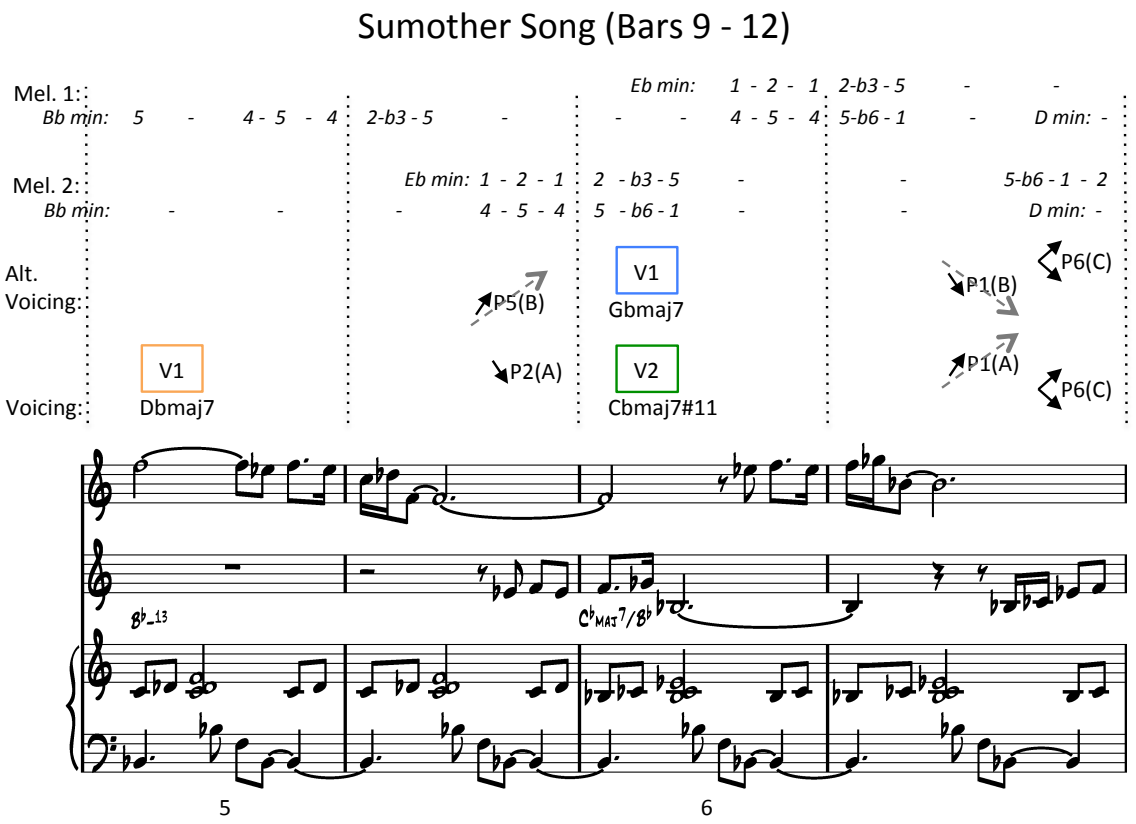
and F. But upon closer examination, using the main melody note sustained through a large portion of this chord's duration, the three notes in the guitar part can be seen as a partial voicing that fits into the model outlined throughout this paper. The three notes in question, combined with the melody note form a maj7$^{\#11}$ (V2) voicing at pitch level 'G^{b}' (on the blue axis).

The melody analysis above chords '3' and '4' perhaps needs some clarification. The melody's interpretation in F minor (above chord '3') is the continuation from the previous F minor of chord '2'. This is perfectly stable and plausible with the $^{b}3^{rd}$ dropping down to the 5th. This shape of the $^{b}3^{rd}$ down to the 5th (preceded by the 2nd to produce '2 - ^{b}3 - 5) is one that Wheeler comes back to repeatedly.[46] However, as one proceeds along the F minor line of the diagram, the notes undergo a movement towards F phrygian with the flattening of the 6th approaching chord '4' and the $^{b}2$ shortly thereafter which becomes the main note of the melody for nearly 2 bars. The interpretation from the viewpoint of D^{b} major is just a reflection on the two voicings indicated above chord '3' pointing (erroneously) toward D^{b} major as their functional scalar origins. Yes, 'anatomically' this interpretation provides the right notes but the functional information is incomplete without some reference to B^{b} minor. The interpretation in G^{b} lydian is merely from a point of view looking at the melody through the G^{b}maj7$^{\#11}$ voicing that continues through the entire four-bar section.

[46] This has significance not only as a melodic shape that anchors local tonality, but also in that it outlines the actual shape of a maj7 voicing omitting the 5th.

It is the B^{b} minor view that seems to carry the day in terms of the eventual destination at chord '5' shown in the next four-bar section in Figure 3-3. The F phrygian interpretation of chord '4' results in an unequivocal Movement A cadence from F7sus^{b9} to the B^{b}min in chord '5'.

Figure 3-3.



The melody continues in B^{b} minor through the bar of chord '5' into the next bar where it ends in the previously mentioned '2 - ^{b}3 - 5' melodic shape which defines the key area of B^{b} minor. Looking back at chord '3' in Figure 3-2, there was purpose behind

the use of the orange D^{b}maj7 voicing in that it was indeed pointing the way forward to B^{b} minor.

Pausing to look at what has happened so far in terms of voicing level and progression functionality, some interesting details emerge. By plotting the first five chords as written (this is a good example in that they are indeed *written*, with the exception of chord '4' which is inferred, but not without foundation), a picture of functionality can be seen on the three-pole axis in Figure 3-4a.

Figure 3-4.

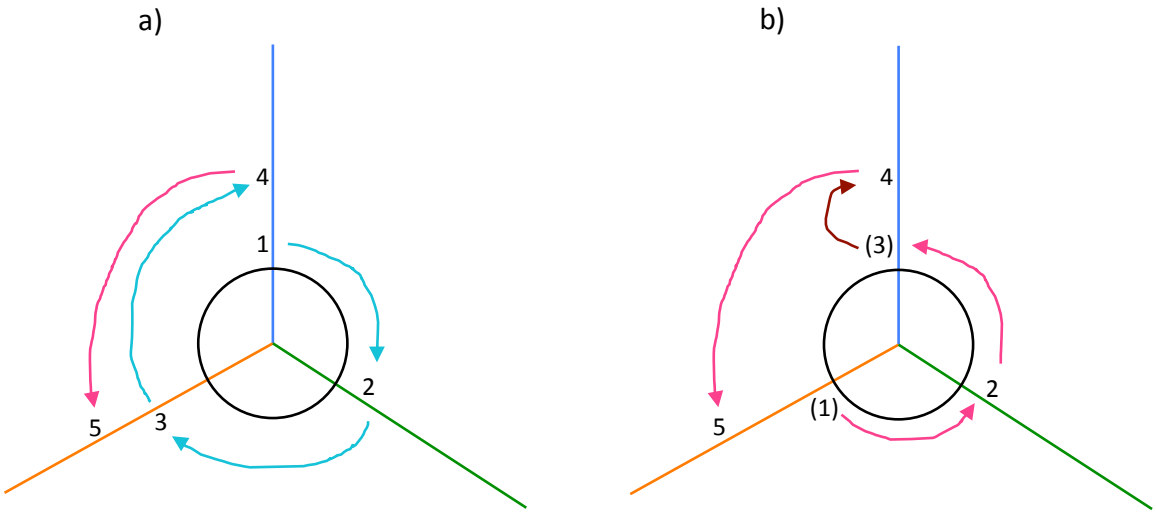


Figure 3-4a gives a picture that is very similar to Figure 2-50b, that of a progression moving through diatonic systems in a series of Movement B progressions before finally settling on one to enter into 'for real' in a Movement A cadence. However, if one replaces the voicings for chords '1' and '3' with the alternate voicings indicated (in

brackets), an entirely different picture appears in Figure 3-4b. These two alternate voicings are not far-fetched, and in the discussion above have been shown to be in some ways more 'foreground' than the ones indicated by Wheeler (the first chord has indeed been shown to be E major). And yet now the diagram is dominated by Movement A progressions, with one Movement C from voicing '(3)' to '4'.

To the analyst or theoretician, this represents a conundrum. But perhaps to the composer, and certainly to the improviser, this represents choice. Choice in terms of pathways to take from point A to point B, or choice as to which stops to make (or pass by) along the way. These pieces were written as a platform for interpretation by the improviser (or group of improvisers), so choice has to enter into the process at some point. This multi-layered harmonic situation allows for not just choice in the *how to do it*, but also real choice in the *what to do*.

Continuing with chord '5' from Figure 3-3, Wheeler's chord symbol is B^{b}min13, which is open to suggestion on a few levels. At the very least it indicates a G natural in the pitch collection, which is nowhere to be found in the written parts on his original lead sheet. Why he would insist that this piece of information be included is anyone's guess, but knowing that he doesn't tend to just include things without a reason leads one to suspect that it has significance if not in the arrival on B^{b} minor, then perhaps in moving onward.[47]

[47] The 13 included in the B^{b}min chord symbol often means 'dorian', not just that it has a G natural, but also suggests that the 13 requires the support of an A^{b} as the $^{b}7$ of the chord. This opens another possibility for alternate voicing on 'A^{b}', but while it leads to interesting and significant discussion, it is beyond the scope of this paper.

Chord '6' at first glance seems to turn the previous B^b minor chord into a $B^b sus^{b9}$ in apparent preparation to move on to the key of E^b, but this is diatonic-centred thinking at its best. Looking at the basic (written) voicing row, we can see the movement from chord '5' to chord '6' is a Movement A from orange to green. This is indicative of dominantization.[48] However, another major event occurs here in the recording, and that is the entry of the counter melody.[49]

The entrance of the counter melody hints at another view of chord '6'; that of E^b minor with the 5^{th} (B^b) in the bass. The counter melody arrives with an immediate statement of the '2 - ^{b}3 - 5' melodic cell that is (or has been up to now) indicative of key centre, so instead of chord '6' being the dominant of E^b minor ($B^b 7sus^{b9}$) it *is* E^b minor. The key of E^b minor brings with it the *alternate* voicing level of 'G_b' (shown in the 'alternate voicing' row above the original), and is also reinforced with the same statement of '2 - ^{b}3 - 5' in the main melody in the next bar. This may also partially explain the G natural indicated in the previous chord symbol, in order to ensure perceived harmonic motion when proceding to the G^b as ^{b}3 of E^b minor. The E^b minor in this case must be aeolean in order to accommodate the original written voicing of $C^b maj7$, and aeolean

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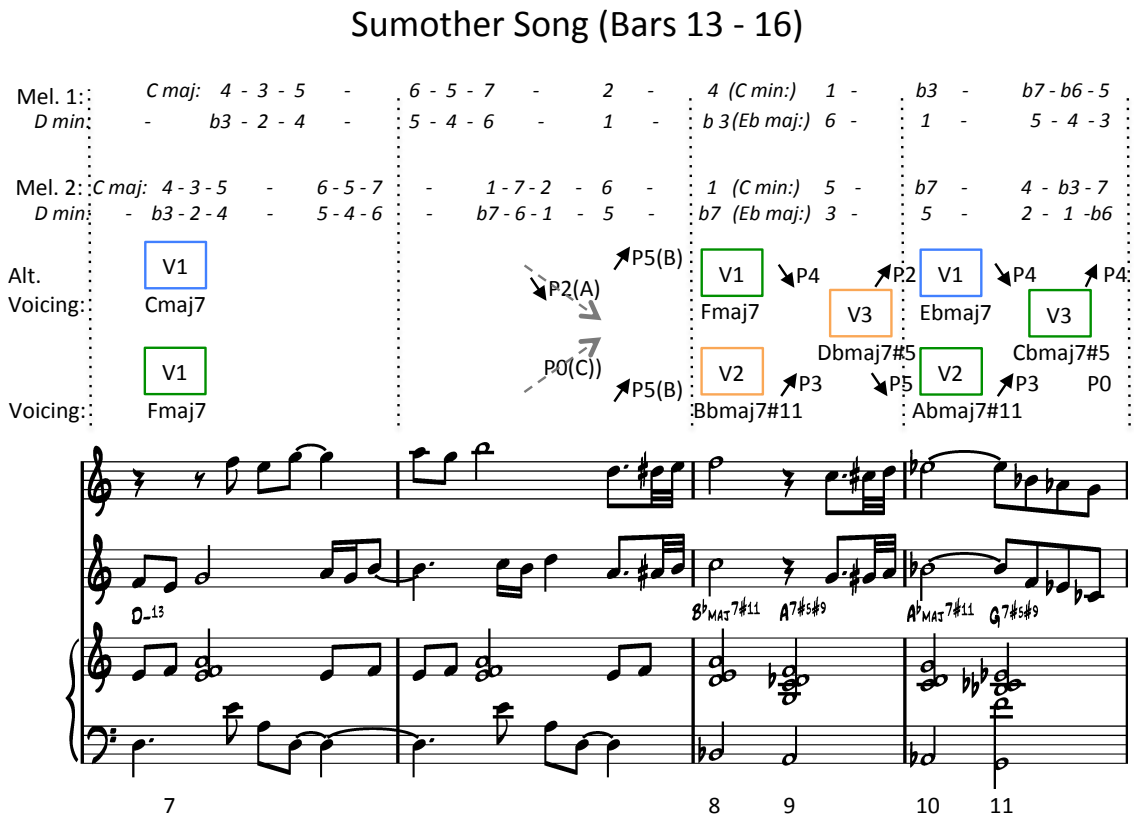
[48] To turn any major or minor chord into a dominant type chord (including "pre-dominant" type sus4 chords) requires a Movement A in the voicing.

[49] In Wheeler's original lead sheet at letter 'A' is indicated above the counter melody a note saying "possible tacet til X". Indicated at the pick-up to chord '6' is the 'X' in question. This may be the actual lead sheet used on the recording.

(like the example of the lydian chord earlier) can be an 'either/or' situation regarding voicing.[50]

The reason for the fuss being made about chord '6' is that it sets the stage for what becomes one of the most curious movements in the entire tune, which is the movement from chord '6' to chord '7'. The section of the song that begins with chord '7' is shown in Figure 3-5.

Figure 3-5.



[50] In some ways, aeolean is a situation where one actually *requires* both voicings in order to get a balanced view.

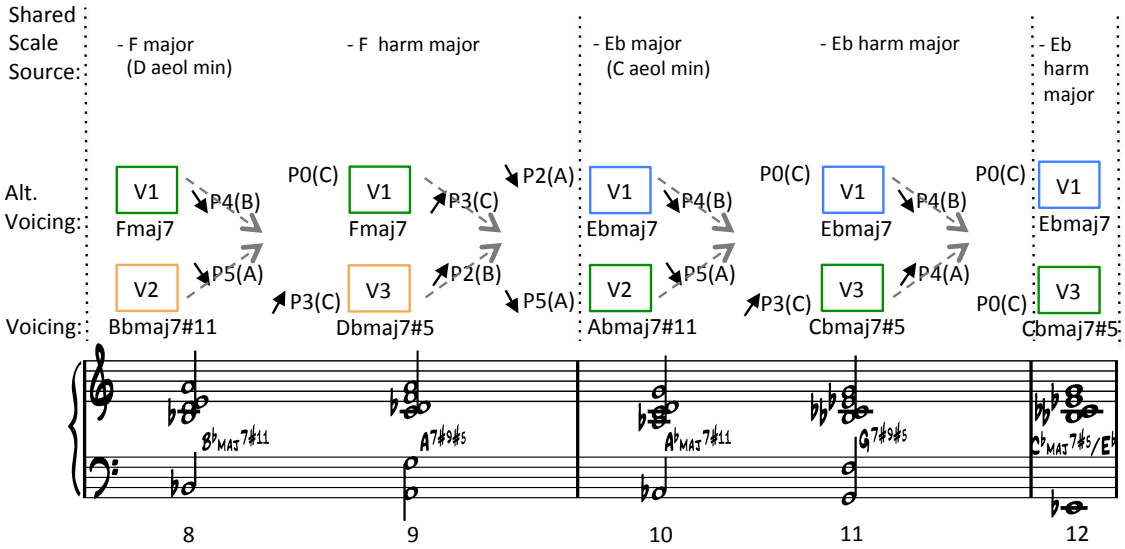
The odd thing about the progression from Chord '6' to chord '7' is that if one takes the written voicings at face value, there is no functional movement. The green $C^{b}maj7^{\#11}$ (V2) voicing written in the 'regular' voicing space above chord '6' (Figure 3-3) moves to its corresponding voicing above chord '7' in a Movement C (up or down P6, or a tritone). This isn't necessarily overly significant, except that it really doesn't sound like there is an absence of functional movement. Even when adding the 'alternate' voicings for both chords (Gbmaj7 for chord '6', from the E^{b} minor discussed earlier in the counter melody and answered by the main melody, and Cmaj7 for chord '7'derived from Dmin13 as D dorian indicative of the pitch collection of C major), there is still no movement between these voicings as well (up or down P6, or a tritone). There remains the 'B' and 'A' movements resulting from jumping from one voicing stream to another ('regular' to 'alternate' and vice versa), and it is probable that the feeling of progression evident here is due to the upward P1 movement from the green C^{b} voicing in the lower voicing row to the blue C voicing in the upper.

The melody also takes a sharp turn from chord '6' to chord '7' in that it moves abruptly from E^{b} minor to D dorian/C major. This reflects the large physical (but not necessarily functional) leap taken in terms of key centre.

The last two bars in the first half of the tune are noteworthy in two ways. The first is that through this system of voicing/alternate voicing one can again see that multiple functional pathways can be negotiated through what looks like a fairly straightforward progression. The second is that upon arrival at the resolution chord, it

turns out to be not what one would predict, in both quality and resolution. The progression is reproduced in more detail in Figure 3-6.

Figure 3-6.



As approached from the D minor of chord '7', the Bbmaj7$^{\#11}$ chord (chord '8') is another example of the ^{b}VI member of the 'walk-down' family of chords, and is therefore equally (or sometimes more desirably) expressed using the Fmaj7 (V1) as derived from D minor. As one follows the lower row of voicings, chord '9' is expressed in the normal manner using orange V3 voicing at the level of D^{b} (with the 7th added between the root and the voicing). The next bar is the same through chords '10' and '11' but down a whole tone. This is a typical 'iii - VI - ii - V - i' progression, but with other root choices on the iii and ii chords. This would normally lead to a tonic of C (major or minor), but instead the destination is a substitute for C minor, the relative major of C minor, or E^{b}

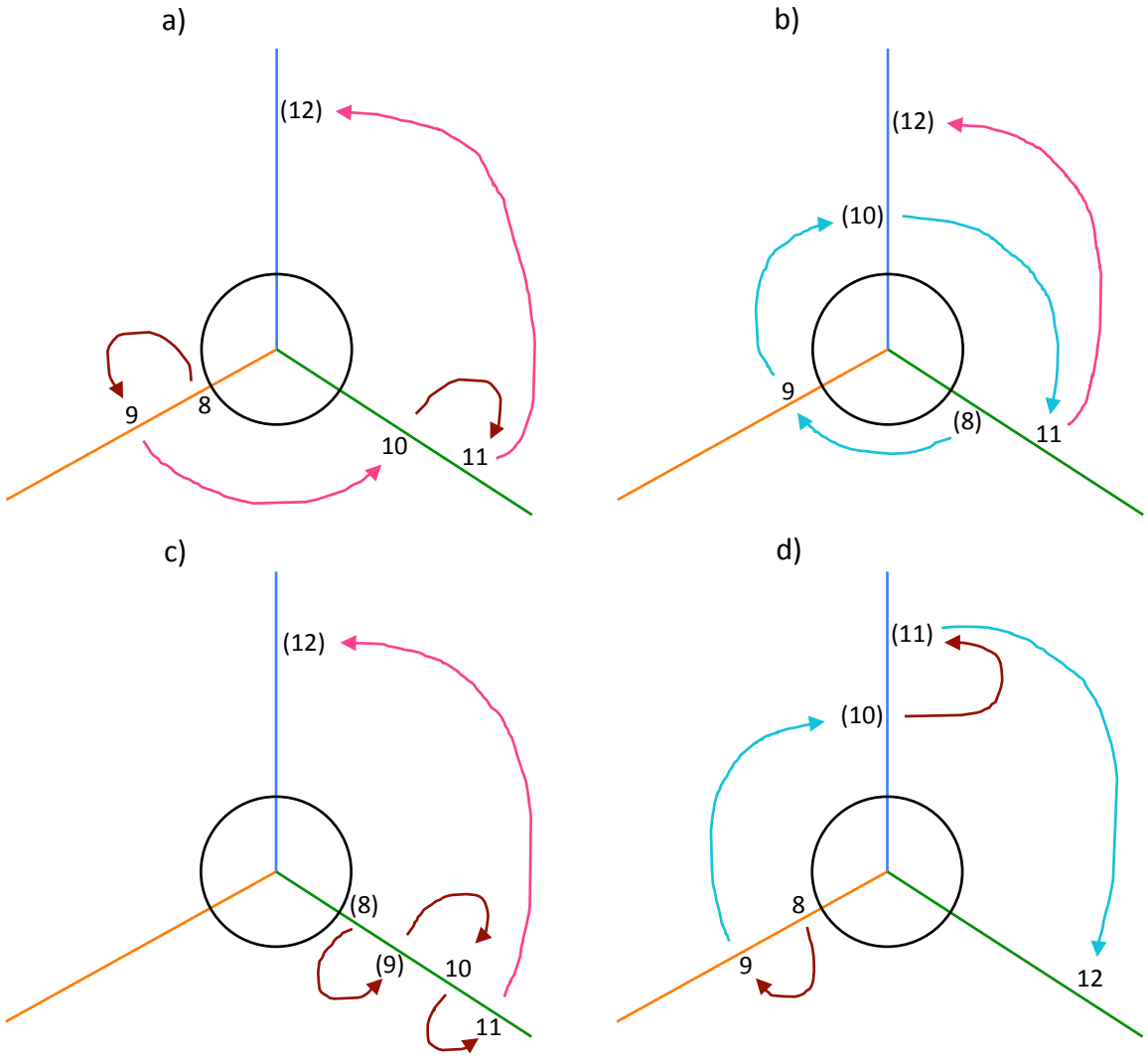
major. However, if one examines the voicing movement from chord '11' to chord '12' in the lower voicing row of Figure 3-6, there is no movement. The voicing found immediately above chord '11' is identical to the voicing above chord '12'. Yet there is cadence, and strong cadence at that. This is due to several factors. One is the voice leading in the melody and countermelody ('4 - 3' in E^{b} major in the melody, and '$^{b}6$ - 5' in the countermelody). Another is the directionality of the previous four chords that funnel everything toward chord '12'. But one of the main reasons for the success of this cadence event has to do with *background* voicing movement.

The E^{b} major sound at chord '12' is a surprise, in that one is expecting C minor. That Wheeler goes to E^{b} major is not extraordinary either, except that the voicing is retained from the previous chord to produce the same expression of E^{b} harmonic major as was employed at the beginning with E major (V3 built from the $^{b}6$ which replaces V1 built on the first degree).

The background ('alternate') voicings in this diagram differ from some we have had previously in that the dom$7^{\#5\#9}$ chords are alternately sourced from harmonic major (specifically with the third degree of harmonic major in the bass, with a V3 (or V2) sourced from the $^{b}6$ level). Previously the dom$7^{\#5\#9}$ has only been sourced from the melodic minor scale, which has no voicing discrepancy, and so only one available axis location. This alternate source increases the number of available voicings, and considering that any of the pathways from one stream to the other are accessible, the possibilities are many and varied.

In Figure 3-7 one can see a few of the possible functional routes through the progression (from Figure 3-6). The chord numbers in brackets represent the 'alternate' level voicings.

Figure 3-7.



If several of these diagrams look familiar, it is because they have been presented before. Letter 'a' is very much like the graphic in Figure 2-49b (diatonic system with some tonicization through secondary dominants), letter 'b' is very much like Figure 2-50b (diatonic system with total dominantization of everything except the tonic), and letter 'c' is the same as Figure 2-71b ('walk-down' with same voicing over progressively descending bass notes down from the iv chord to the tonic). Letter 'd' presents something new but appears to be the mirror image of letter 'a'.

That this progression produces all of these pathways is not in itself an indication of chromatic background, although the technique of sourcing alternate voicings from harmonic major in this instance is indeed interesting. However, as has been shown earlier (in the discussion surrounding Figures 2-48 through 2-50), most of these pathways are fairly commonplace in the interpretation of standard jazz progressions. What comes next however, is not.

Chord '12' has already been examined, in that there is no voicing movement (either in pitch level or voicing number) from the preceding chord ('11') with respect to the lower voicing row in Figure 3-6. Incidentally, there is no movement from '11' to '12' in the upper voicing row as well. But chord '12' is the beginning of a series of events that can only be indicative of a movement into a chromatic universe.

The Semi-tone Thing

The arrival of chord '12', upon first hearing, seems to indicate a return to the top of the form or at least a repeating of the material from the top of the form. At least it *sounds* like the top of the form, until one looks at the music and finds that the entire second half of the song is a semitone below the first half.

This is not a modulation away by a semitone such as is typically found in popular music (where everything just moves a semitone with no preparation just for 'lift' or effect). It is also not just a repetition of material in another key for variety. Somehow the composition ends up there without the listener being aware of the change in key.

The labyrinth of harmonic movement that the listener is led through during the first half of the tune is sufficiently disorienting that when the second half of the song is begun, the listener just assumes that it has begun again in the same key. And yet there is something about it that is vaguely different, enough that it doesn't sound repetitive.

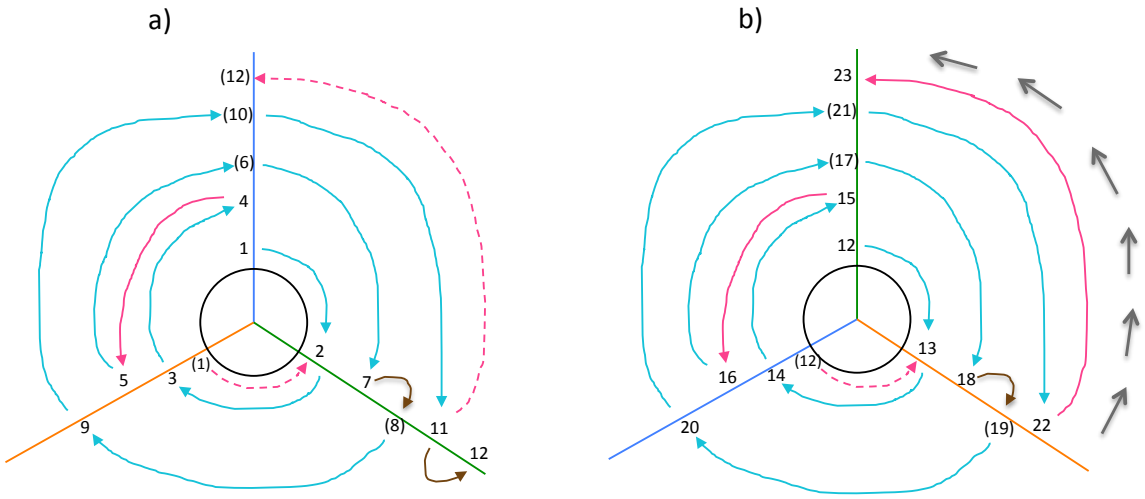
This juxtaposition of two halves of a song at two different pitch levels amounts to a kind of 'transposition operation' on a grander scale.[51]

The entire second half of "Sumother Song" proceeds through to the same descending progression shown in Figure 3-6 (but a semitone lower) until reaching the resolution chord B minor (a semitone below the expected C minor in the first half). Figure 3-8 shows a representation of the two halves of "Sumother Song", with 'a'

[51] Proctor, "Technical Bases", 159-168.

showing the first half, and part "b" showing the second. Brackets indicate voicings taken from the 'alternate' row.

Figure 3-8.



The pictures are nearly identical with the exception that the axes in part 'b' have been rotated counter-clockwise, with the green axis now in the vertical position (as indicated by the grey arrows at right). One can see the movement in part 'a' of chord '11' to '12' as a Movement C (or no functional movement), with a dotted Movement A toward the blue axis for alternate voicing '(12)'. This 'split personality' of chord 12' then begins in part 'b' in the same locations as the split voicings of chord '1' in part 'a'. Also, the Movement A from '22' to '23' in part 'b' is easily seen as foreground, as opposed to the dotted arrow in part 'a' from '11' to '(12)'.

The rotation of the axes one notch in a counter-clockwise direction indicates that the actual succession of progressions has really moved one notch in a clockwise direction, or a Movement B on a larger scale. This may or may not be significant, but it does mean that there would have to be a consequent larger-scale Movement A back to the first half.[52]

Regardless of whether the rotational movements are significant or not, what is significant is that an extraordinary number of Wheeler's compositions reflect this transposition of sections of tunes, usually by semitone (either up or down), but often by other intervals too. Not very common are shifts of a whole tone[53], or a major 3rd [54], but they do occur. Almost non-existent though is juxtaposition by minor 3rd, and this is significant perhaps due to the lack of functional movement in the minor 3rd.

One can speculate on Wheeler's use of this device. Perhaps he sets out on a journey through a musical landscape, and just explores. He goes where he wants to go in order to satisfy his curiosity, and then ends up somewhere. That *somewhere* might not be a location from which it is that easy to get home, so in order to find a way back he

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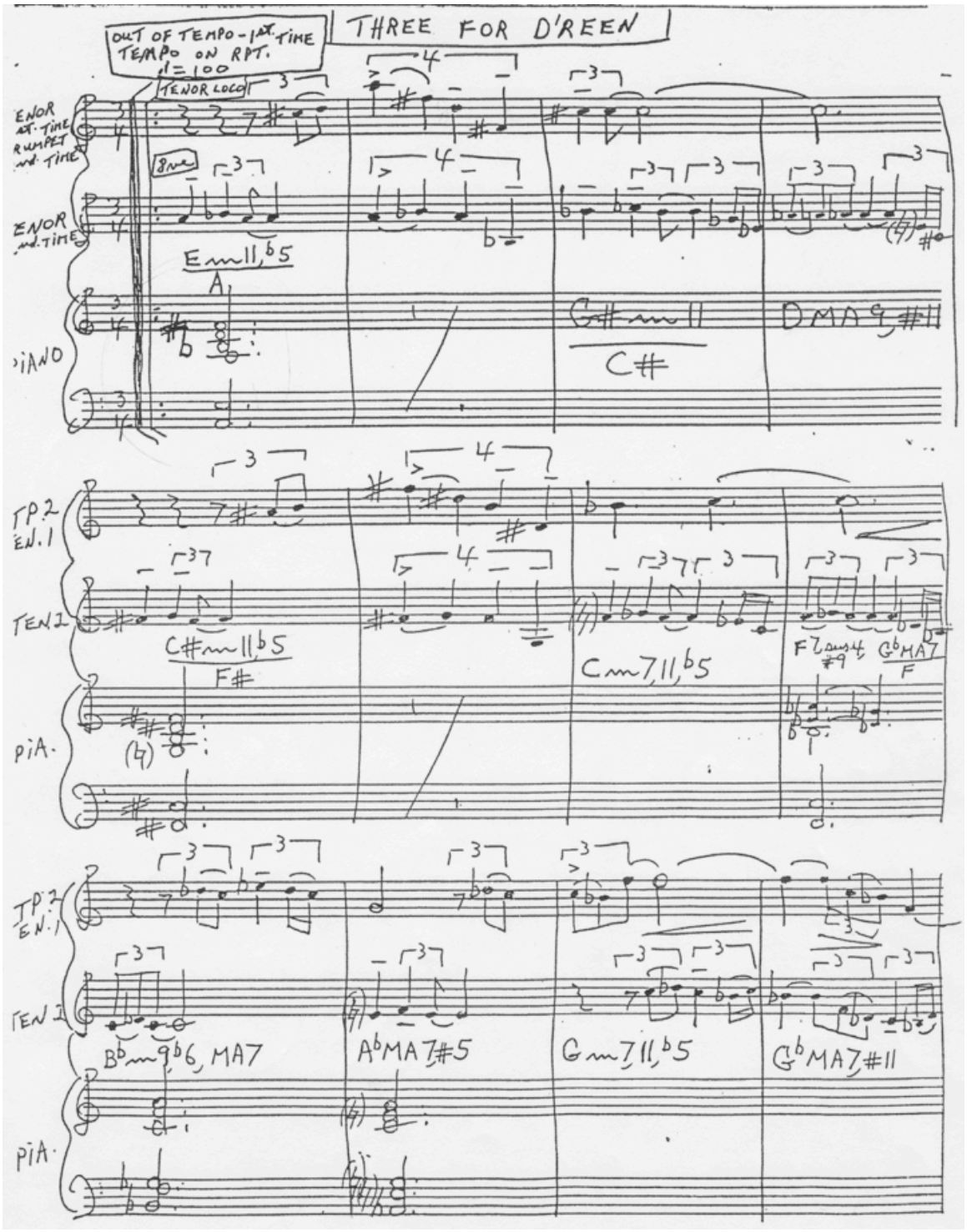
[52] On the recording, and indicated on Wheeler's own lead sheet, the form proceeds after the head to a different solo section. But, later (as can be partially seen on Wheeler's sheet at letter 'D') another soloist uses the progression of the melody as a basis for improvisation at a faster tempo. Therefore the progression back to the top is significant.

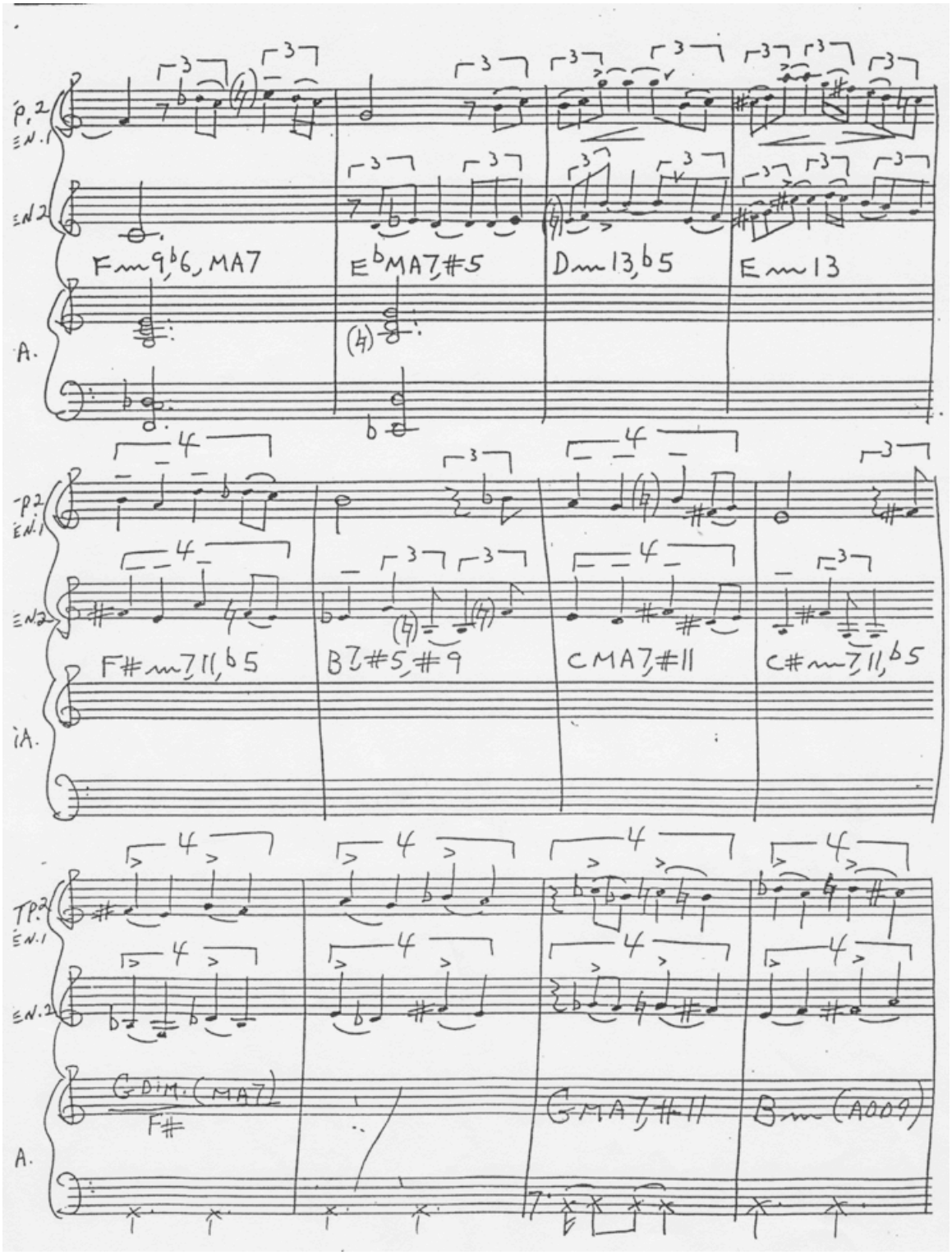
[53] The opening section in "Peace for Five" from *Deer Wan* is an example of whole tone movement in this way.

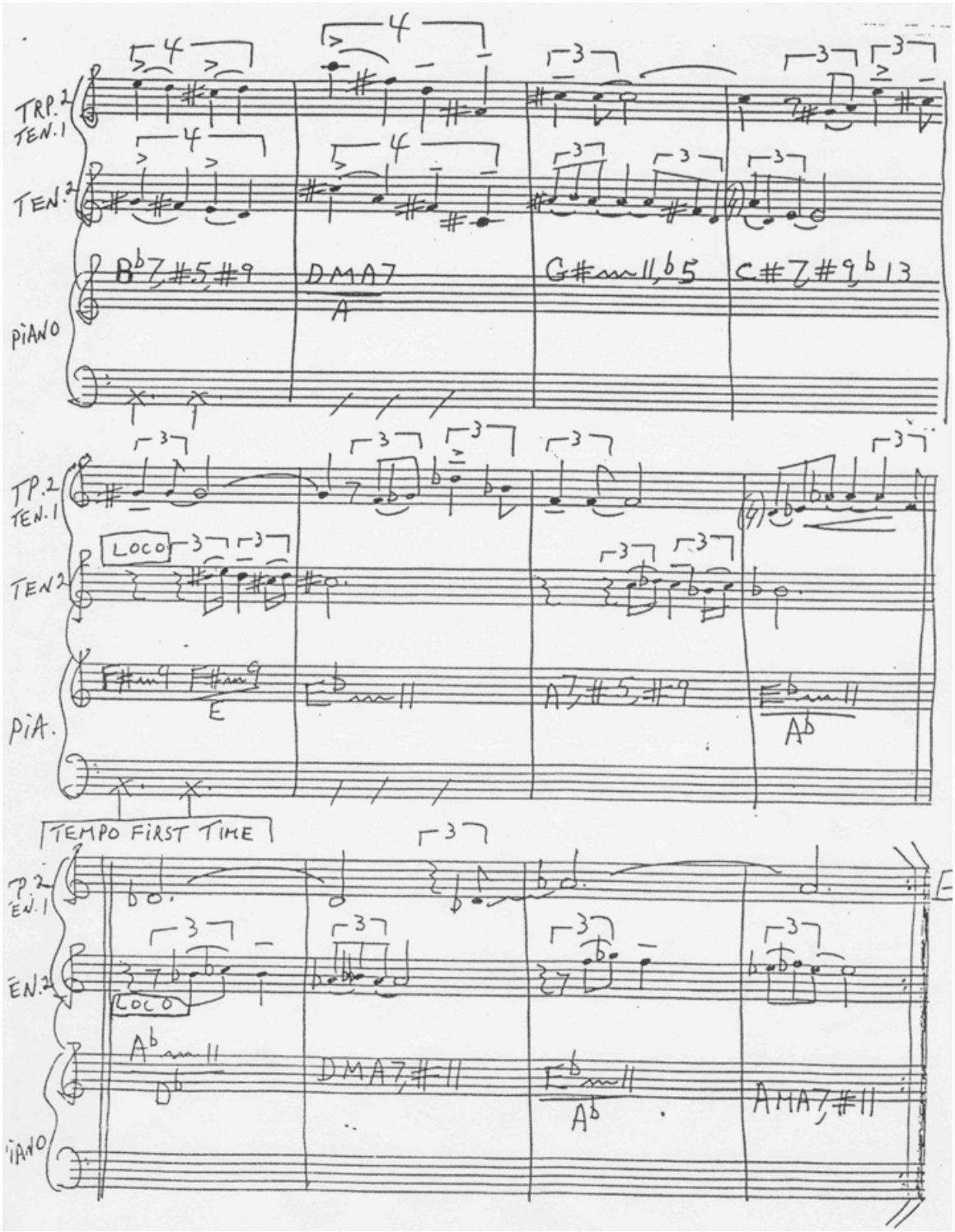
[54] "Kayak" from *Kayak,* Ah Um 012, 1992, compact disc.
"Unti" from *Angel Song*, ECM 1607, 1997, compact disc.
These are examples of a major 3rd movement.

follows it through until he can see a way 'home'. In some ways it's like an explorer setting out on a journey, and because he has gone so far, he knows that the best thing to do is to keep going because after all, the world is round (as is the 'axis wheel') and sooner or later you'll get back to where you started.

"Three for D'reen"




TP.2
EN.1
EN.2
A.
Fm9♭6, MA7
E♭MA7, #5
Dm13, ♭5
Em13
F#m7, 11, ♭5
B7#5, #9
CMA7, #11
C#m7, 11, ♭5
G DIM. (MA7)
F#
GMA7, #11
Bm (ADD9)


TRP. 2
TEN. 1
TEN. 2
PIANO
B♭7,#5,#9
DMA7
A
G#m11,♭5
C#7,#9,♭13
TP. 2
TEN. 1
TEN 2
LOCO
PIA.
E
A♭
TEMPO FIRST TIME
TP. 2
EN. 1
EN. 2
LOCO
A♭m11
D♭
DMA7,#11
E♭m11
A♭
AMA7,#11
IANO

"Three for D'reen" begins with a harmonic statement of what appears to be an Asus13^{b9} chord, accompanied by the tenor saxophone outlining '1 - b9 - 1' of A7^{b9}. This has all the hallmarks of a diatonic system of either D minor or D major, but probably D major due to the natural 13 in the opening chord. The main melody enters with a pick-up to bar 2, outlining a D major triad with the pick-up including the major 7th. This all seems typical, i.e., a V7sus chord in D major with the melodic content using D major material.

However, as the main melody lands on the downbeat of bar three, the indicated chord symbol shifts to G$^{\#}$min7/C$^{\#}$, or a V7sus chord in F$^{\#}$ major, which then moves in the next bar to Dmaj7$^{\#11}$. This may be a lydianized tonic chord.

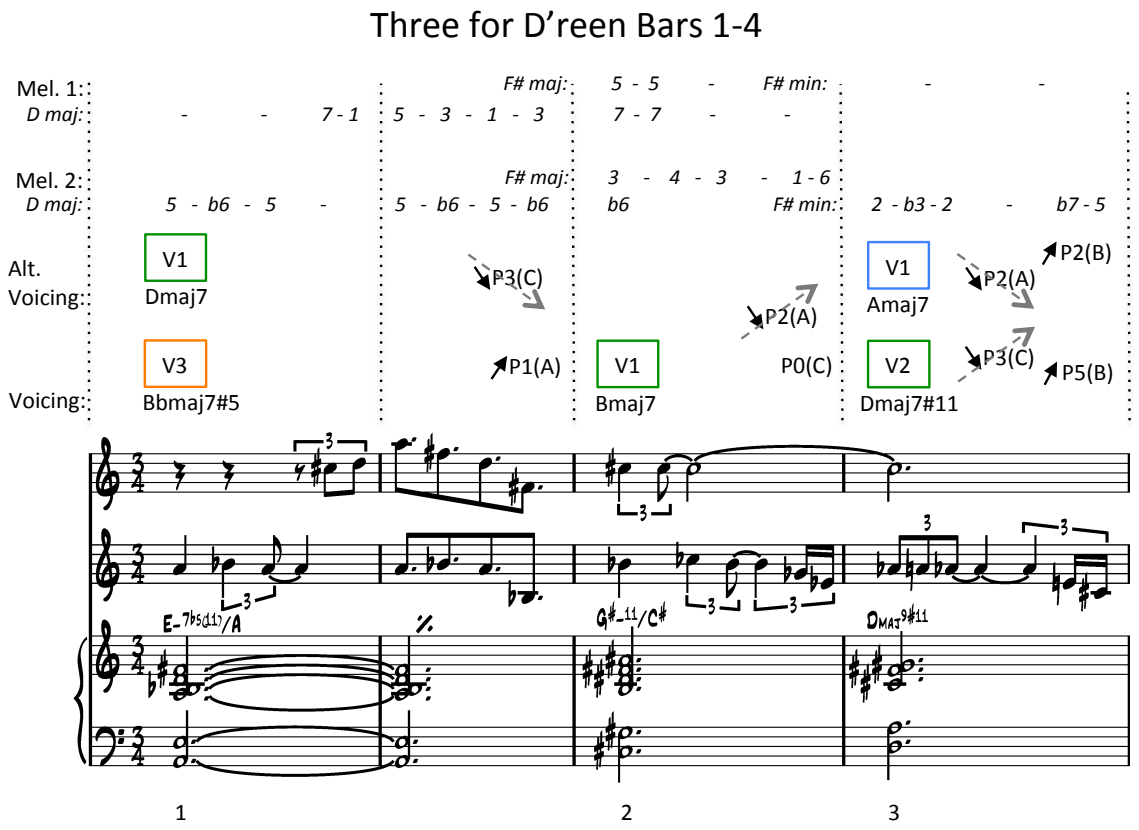
Without some knowledge of the way in which Wheeler uses double entendre in terms of chord voicing, it's easy to fall into a quagmire of complexity. It is possible to be confused on any number of levels trying to explain the function of this chord progression. And it's no wonder really. This is one of his densest compositions with respect to the entanglement of voicing levels as seen through multiple lenses of voicing sourcing.

A closer look at the opening two bars gives a very different (but not totally removed) picture of what is going on here. The opening chord, while looking very much like a V7sus^{b9} chord in D major, is actually D major itself. If one looks back at the opening chord of "Sumother Song", one can see how at first glance it looks like the chord built on the fifth degree of melodic minor. Yet it was an expression of a major chord with the voicing being generated from the flat sixth degree of harmonic major. If one looks at the opening chord in "Three for D'reen", it can be seen to be D major as

expressed by D harmonic major, with the voicing being generated from the flat sixth degree (in this case B^b) as was done in the opening of "Sumother Song". This time though, it is kind of *once removed* from the original in that it has the 5th in the bass, as a type of second inversion of the I chord.

The first four bars of the song are presented in analysis diagram form in Figure 3-9. One can see clearly the harmonic major characteristics of the first two bars in the numerical analysis of the two melody lines (major 7 chord outlined in the top line, with the $^b6$ in the counter melody).

Figure 3-9.



The diagram above shows the two levels of voicing for D harmonic major (the orange V3, from Wheeler's original lead sheet, built on the flat sixth degree, and the green V1 that is indicative of the first degree of the scale). The melody in bar 2 outlines a D major triad that anchors the ambiguous chord at the beginning to its actual key sourcing.

Chord '2', the $G^{\#}$ minor chord shown in the chord symbol, is a functional equivalent substitute for $G^{\#}min7^{b5}$ which would use either a V3 built at pitch level D (holding the green D voicing from the upper level of chord '1'), or V4 on pitch level B (again, a functional equivalent to the green V1 at pitch level 'B' shown above chord '2'). The lower voicing of Bbmaj7#5 (V3) above chord '1' produces a Movement A in its motion to chord '2'.

The melodic analysis now switches to $F^{\#}$ major due to the fact that chord '2' seems to be sourced from there. The continuation into $F^{\#}$ minor takes into account the 'melody 2' movements from '3' to '^{b}3'.

Chord '3' appears to be part of the $F^{\#}$ minor 'walk-down' family, and as such can be expressed with the alternate voicing of Amaj7 (V1) from $F^{\#}$ aeolean minor. The use of this Amaj7 voicing produces a Movement A where there was previously only a Movement C. Looking across both rows of voicings, is evident the same type of 'walk-down' scenario, namely that there is a pathway where there is no functional movement all the way through the first four bars.

If regarded in the context of the 'walk-down' in $F^{\#}$ minor (down from the iv chord, or B minor), the first four bars begin to make more sense. Chord '1' takes on an

added layer of obscurity where, having already been removed from D major in one sense by having the voicing sourced from $^{b}6$ of harmonic major, it is also viewed from the perspective of the D major as a voicing for B minor (on the $^{b}3$) with the bass on the b7.[55]

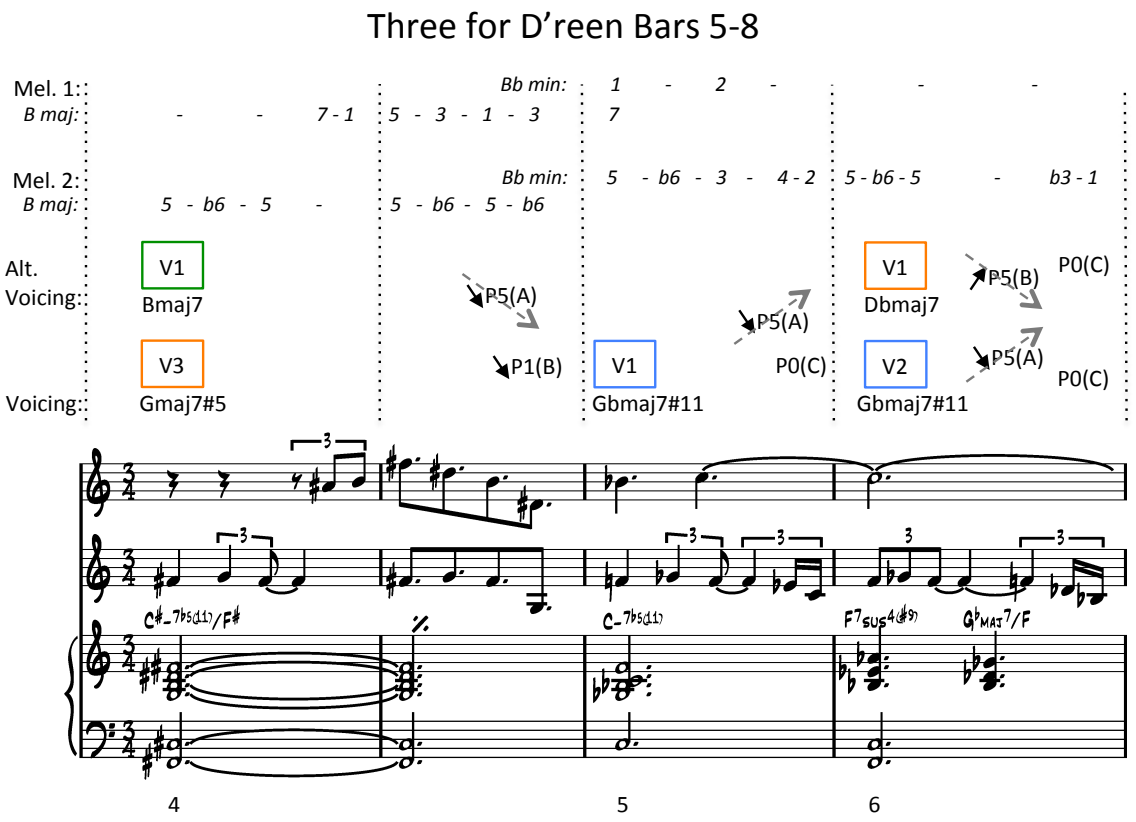
The 'F$^{\#}$ minor walk-down from the iv' scenario gives more credence to chord '2 being seen as something that originates with G$^{\#}$min7^{b5} (the next chord in the walk-down series), but the quality of the chord has been altered to G#min7 which in no way changes its functionality or axis location. This function is also not altered in any way by the use of the C$^{\#}$ bass note on this chord. In fact, the use of the C$^{\#}$ effectively combines two chords of the walk-down into one, and instead of a ii - V to the i chord one now has a V7sus going straight to i.[56]

Once again nothing is as it seems and the i chord is obscured in its replacement by ^{b}VImaj7$^{\#11}$ (Dmaj7$^{\#11}$). Looking back at Figure 3-9, the F$^{\#}$ minor lives on in chord '3' with the blue V1 at pitch level A, which is indicative of the tonic in the walk-down progression. Also, the notes in the counter melody are consistent with the F$^{\#}$ minor quality of chord '3'.

[55] For reference to this idea see Figure 2- 66, function 2, chord '2'.

[56] Again, Figure 2-66, function 2 is helpful in visualizing this.

Figure 3-10.



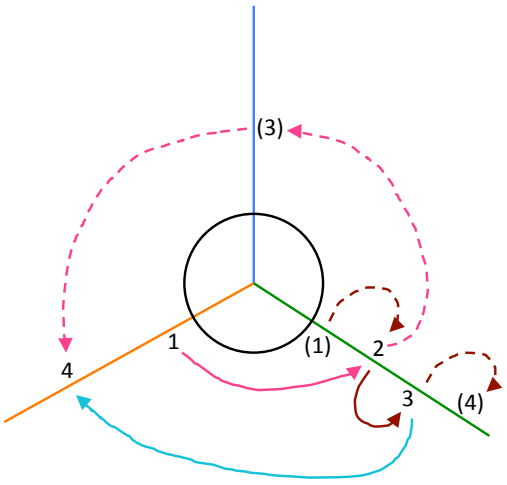
The next four bars can be seen in Figure 3-10 with the melodic information in both voices being identical to the first two bars of the piece (Figure 3-9). Although the key area has moved, the axis colours in the indicated voicings are identical to the to the opening of the piece. The fact that everything is functionally equivalent in terms of axis placement means that this is a functional restatement of the original material in the first four bars, even though this second statement is in another key.

However, the movement to chord ‘5’ indicates a different destination with the appearance of the two blue voicings in chords ‘5’ and ‘6’. These two chords point the way forward to a type of B^{b} minor chord in chord ‘7’ which will soon be discussed.

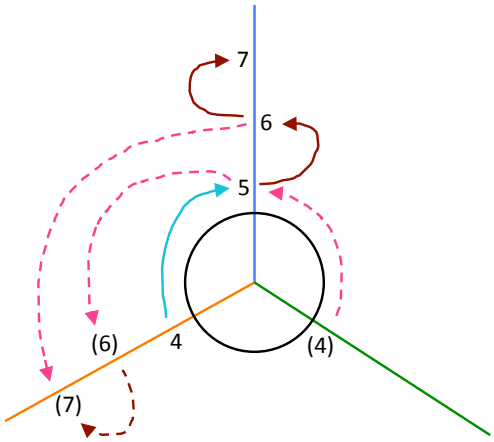
Figure 3-11 shows a comparison of bars 1-4 and bars 5-8 in axis format, showing all of the movements between voicings indicated in Figures 3-9 and 3-10. The bracketed numbers in the diagrams indicate the voicings on the upper ‘alternate’ level.

Figure 3-11.

a) Voicings 1 - 4



b) Voicings 4 - 7



The arrows with solid lines indicate the pathways through the voicings on the lower levels of the analysis diagrams (Figures 3-9 and 3-10) and the dotted lines indicate the pathways that include voicings from the upper ‘alternate’ level. There are a number

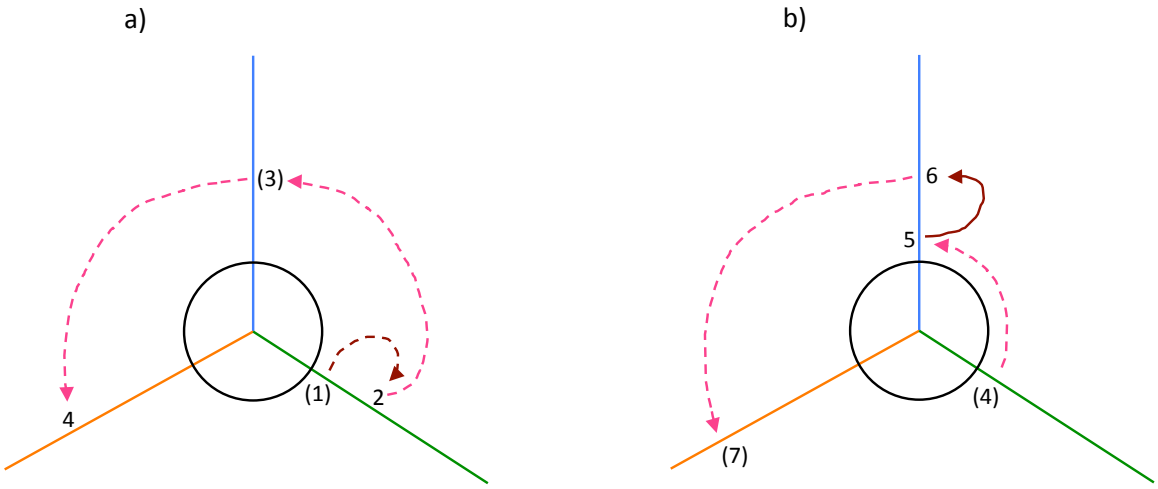
of pathway choices available for realizing an improvised line or idea. The dotted lines are not necessarily to be viewed as 'lesser' pathways, only that they are subsidiary to what is actually indicated on Wheeler's chart. It has already been established that several of his indications are substantially more 'background' than some of those listed in the 'alternate' category.

But, depending on how one sifts through this information, many perspectives can be obtained on how to deal functionally with what is going on behind the scenes. Looking at diagram 'a', if one thinks of the first chord as D major, then the voicing labeled '(1)' is perhaps a better bet to express that thought, even though it is in the 'alternate' listing. The voicing labeled '2' has no counterpart here, and so the movement from '(1)' to '2' is that of a Movement C.

Moving towards voicing '3', there is a choice presented which one must consider. Earlier in this discussion, in the context of the $F^{\#}$ minor 'walk-down from the iv chord' it was established that the blue V1 (Amaj7) had a significance in expressing the tonic sound even though the bass note goes to the $^{b}6$. So perhaps '(3)' is a choice one should consider. However, if one chooses '(3)' the only path available is another Movement A to '4' (which is the first chord in Figure 3-10).

Figure 3-12a displays the pathway through the voicings described by the decision-making process just described.

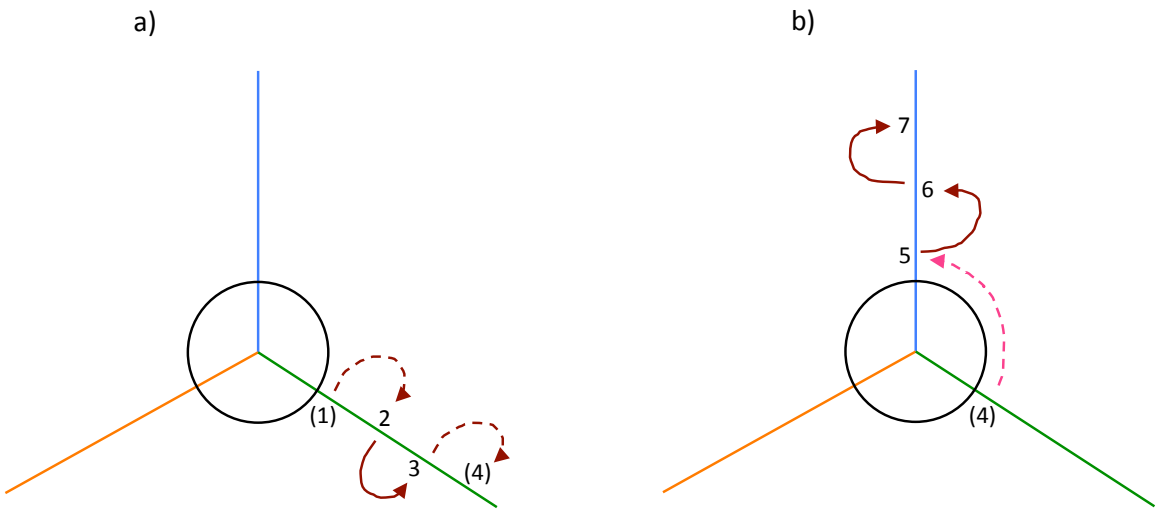
Figure 3-12.



Section ‘b’ in Figure 3-12 is a selected pathway through the voicings of chords ‘4’ through ‘7’ based on similar criteria. Voicing ‘(4)’ (as opposed to ‘4’) was chosen for its faithfulness to the function of B major (as opposed to the more obscure orange V3 from the $^{b}6$ of harmonic major), moving to ‘5’ as the only option listed. ‘6’ is a more viable option towards the B^{b} minor in that the orange V1 D^{b} voicing ‘(6)’ is not very effective in the tonicization of chord ‘7’ (Bb minor).

While the foregoing scenarios might be good decisions for the execution of improvised realizations of the progression through the first eight bars on a micro’ level, other strategies might be more effective in considering the directionality of the song itself on a more ‘macro’ level. Figure 3-13 represents a different picture of what might be happening on a larger scale.

Figure 3-13.



The picture in Figure 3-13 is quite different from the one shown in Figure 3-12. Figure 3-13 describes a more fundamental picture of a journey out the green axis, followed by a small trip out the blue. Both of these approaches are valuable to the improviser; one in detail and short-term functionality, the other in the context of longer-term phrasing and directionality. The first might be of more use to a soloist, whereas the second might be more of a concern for a rhythm section shaping the overall picture, guiding the ensemble toward a destination on a larger scale.

Continuing with "Three for D'reen", the next four bars are displayed in Figure 3-14, and actually comprise the section that was shown earlier in the 'walk-down' section in Figure 2-72.

Figure 3-14.

A detailed analysis of the harmony in this section of the song is given previously in the discussion pertaining to Figure 2-72, so repeating it is unnecessary. However, the melody was not included with the harmony in the earlier example.

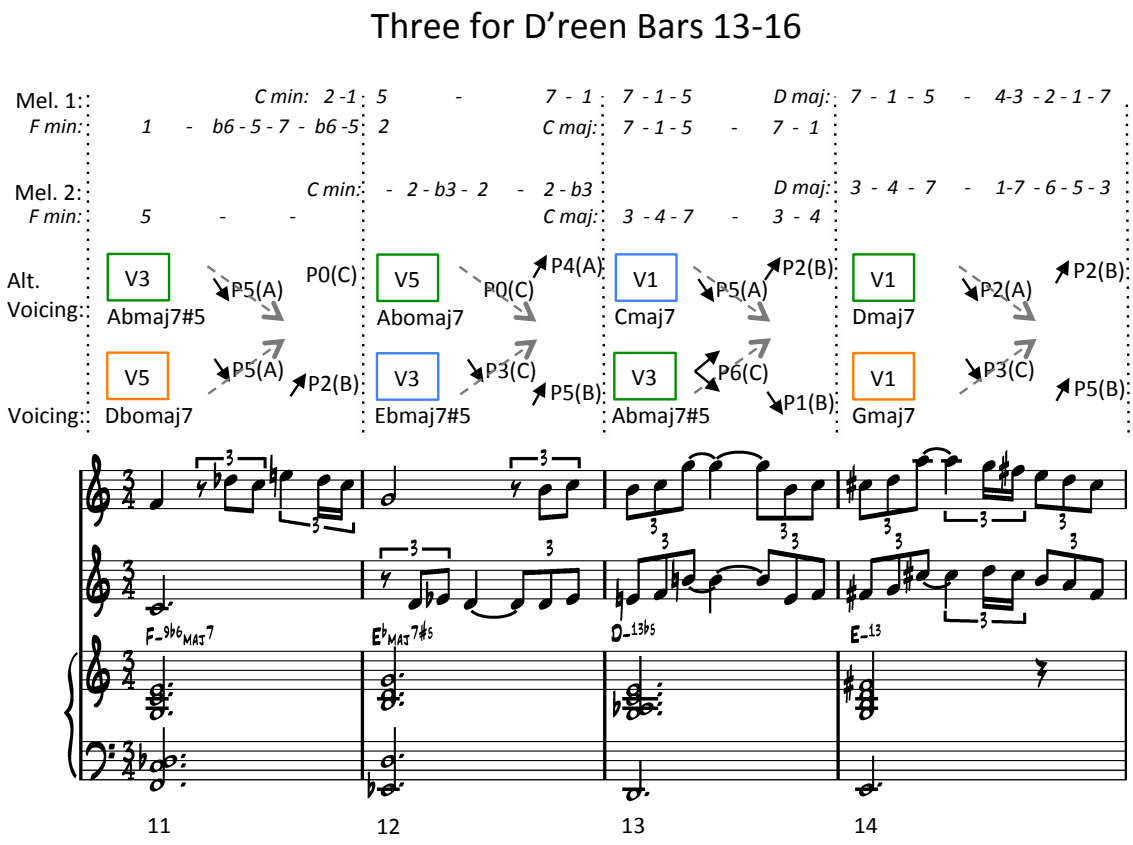
In the previous four bars (Figure 3-10) the melody through chords '5' and '6' is already foreshadowing the destination of B^b minor at chord '7' in Figure 3-14. Upon arrival at chord '7', the melodic trajectory turns toward F minor, due to the fact that this

entire four bars is a variant on the walk-down scenario in F starting on the minor iv chord (B^{b}min) down through to the minor i chord (Fmin).

Notable is the '2 - ^{b}3 - 2' in the counter melody above chord '7', in that the chord symbol is B^{b}min but has no 3rd in the voicing. The counter melody verifies that this is harmonic minor (as opposed to harmonic major). This is also another example of Wheeler bringing to the 'foreground' the voicing built on the ^{b}6 (the blue Gb V5) of the tonic chord instead of the typical (and ordinary) orange V3 on D^{b}.

Also worth mentioning here is that the picture drawn in Figure 3-14 of the 'macro' view of what is happening in the song harmonically can be seen to continue if one considers the axis picture in Figure 2-73d as the next sequential event revealed by Figure 3-13 'a' and 'b'. This shows a series of movements running out the green axis, followed by a Movement A cadence to the blue axis, running out the blue axis, and finally moving (via Movement A again) to the same type of movement running out the orange axis through the duration of Figure 3-14.

Figure 3-15.

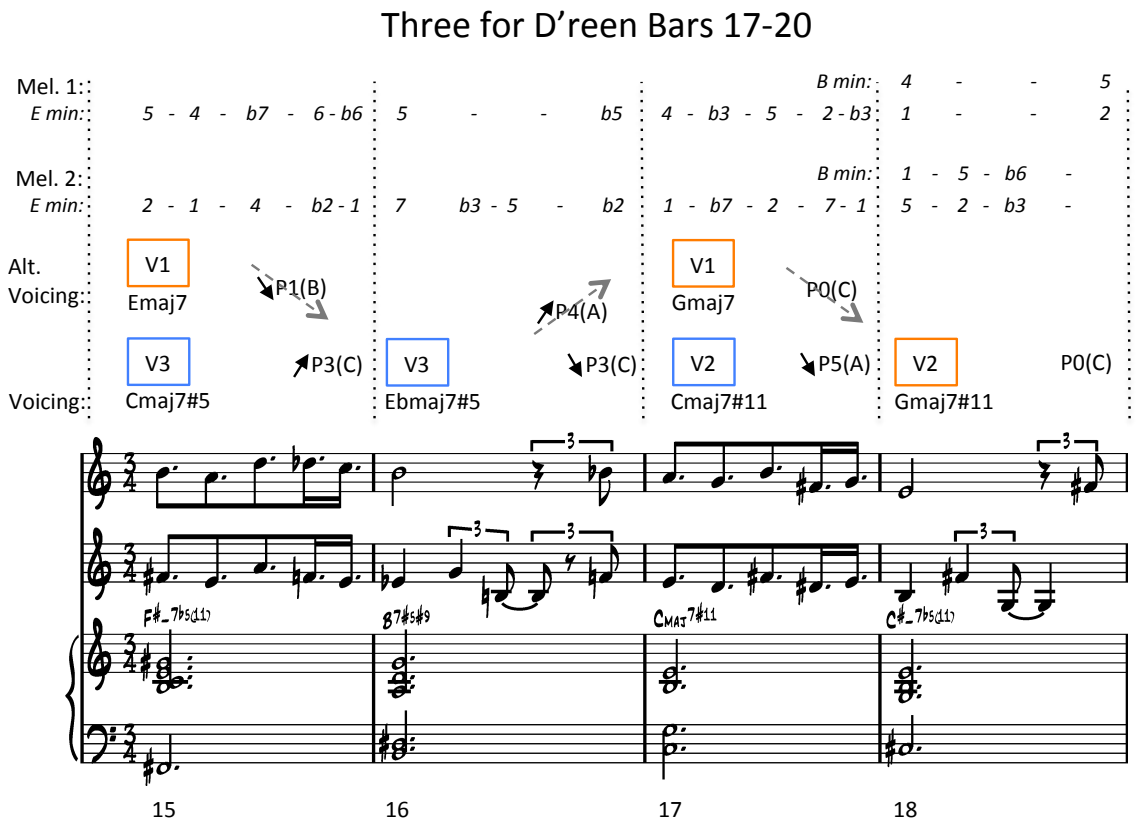


The arrival at chord '11' marks yet another 'walk-down from the iv to the i' in minor, this time from F minor down toward C minor. Immediately upon arrival, the F minor becomes the iv of the new key (C minor), and also takes upon itself the dual personality of the Fmin$^{b6(maj7)}$ chord that was chord '7', only this time in F. This chord is a tonic chord for Wheeler, and is a replacement of melodic minor with harmonic minor, with the D^{b} V5 (from ^{b}6) moving in to displace the usual A^{b} V3 (from ^{b}3).

The movement from chord ‘11’ through to chord ‘13’ is identical to that of chords ‘7’ through ‘9’ from four bars previous, but chord ‘13’ is slightly different. Instead of being labeled ‘min7(11)^{b5}’, it is called ‘min13^{b5}’. This is not a commonly used chord, and is indicative of a min7^{b5} chord as sourced from the second degree of harmonic major. This brings into play the V1 built on the first degree of that scale (which is C harmonic major, and hence the blue V1 Cmaj7 voicing listed in the ‘alternate’ section above chord ‘13’). The next few movements (chords ‘13’ to ‘14’, and on to ‘15’, although not yet shown) signal an end to the walk-down scenario and the beginning of a quasi-parallel upward movement in whole-tones.

The melody reinforces this scenario. Above chord “11”, the melodic movement of ‘^{b}6 - 5 - 7 - ^{b}6 - 5’ in F minor is characteristic of the F harmonic minor scale, and the subsequent shift in melodic analysis from F minor to C minor (above chord ‘12’) reflects the functionality of the walk-down from the iv chord (Fmin) down through toward the i chord (Cmin). The melodic analysis switches to C major above chord ‘13’ to accommodate the E naturals in the counter melody and the shift from a progression heading toward C minor to one that is moving up in whole tones from C major (harm), and then up a tone to D major above chord ‘14’ mirroring the parallel movement in the harmony.

Figure 3-16.

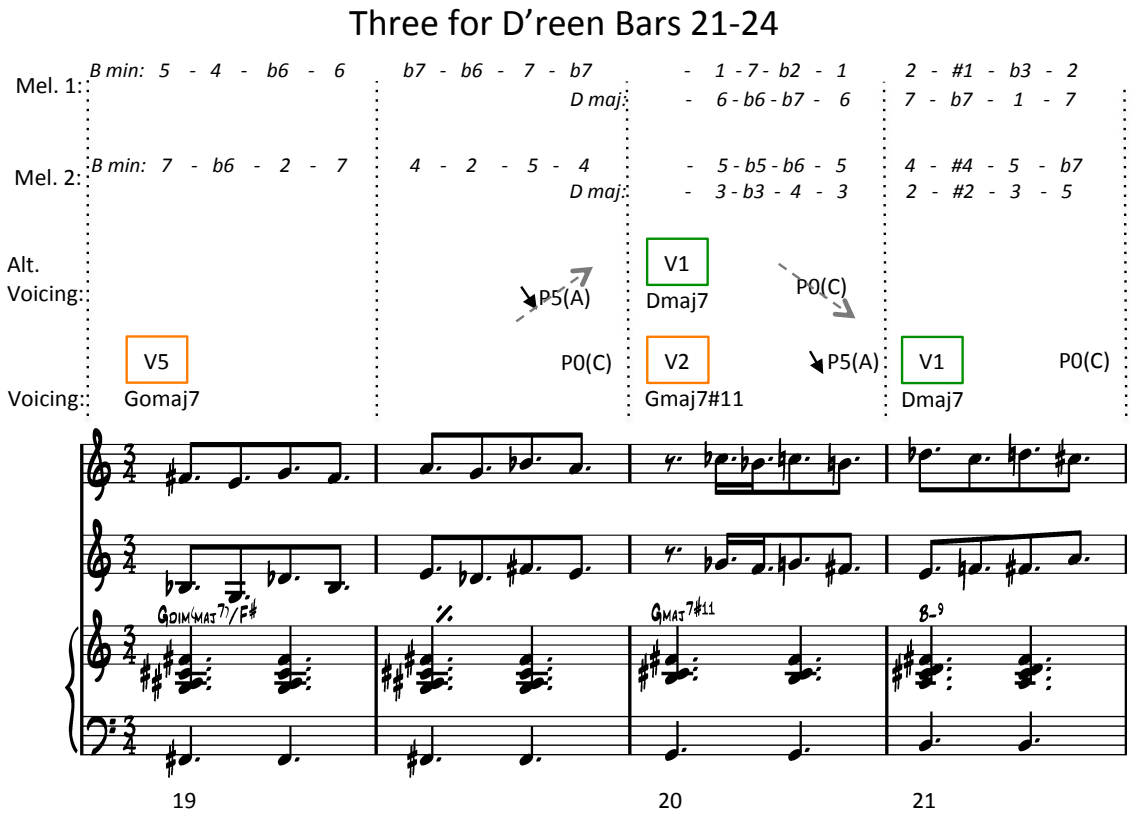


The arrival at chord '15' marks the top point in the whole-tone ascension over the last few bars, and the melodic analysis reflects the arrival in a system of E minor with the ii chord in a ii - V progression toward E minor through chords '15' and '16'. Oddly enough, even though the walk-down through chords '11' through '14' (down from F minor toward C minor) is interrupted before reaching its destination, it actually arrives there anyway if one looks at the blue Cmaj7$^{\#5}$ V3 voicing above chord '15'. The hypothetical C minor tonic would have been expressed as some sort of Ebmaj7 voicing located on the blue axis.

The Cmaj7$^{\#11}$ that is chord ‘17’ is substituting for the tonic E minor chord as part of the E minor walk-down family on the ^{b}6, and therefore the Gmaj7 (V1) voicing in the ‘alternate’ row above is a logical choice, providing the Movement A cadence required for a V - i progression.

Starting at chord ‘17’ there is an interesting take on the walk-down scenario. If ‘17’ is viewed as the ^{b}VI in the E minor walk-down, then ‘18’ is the vi. The downward motion indicative of this harmonic device is now reversed, moving upward. The G level V1 and V2 on chords ‘17’ and ‘18’ respectively, certainly give this impression.

Figure 3-17.

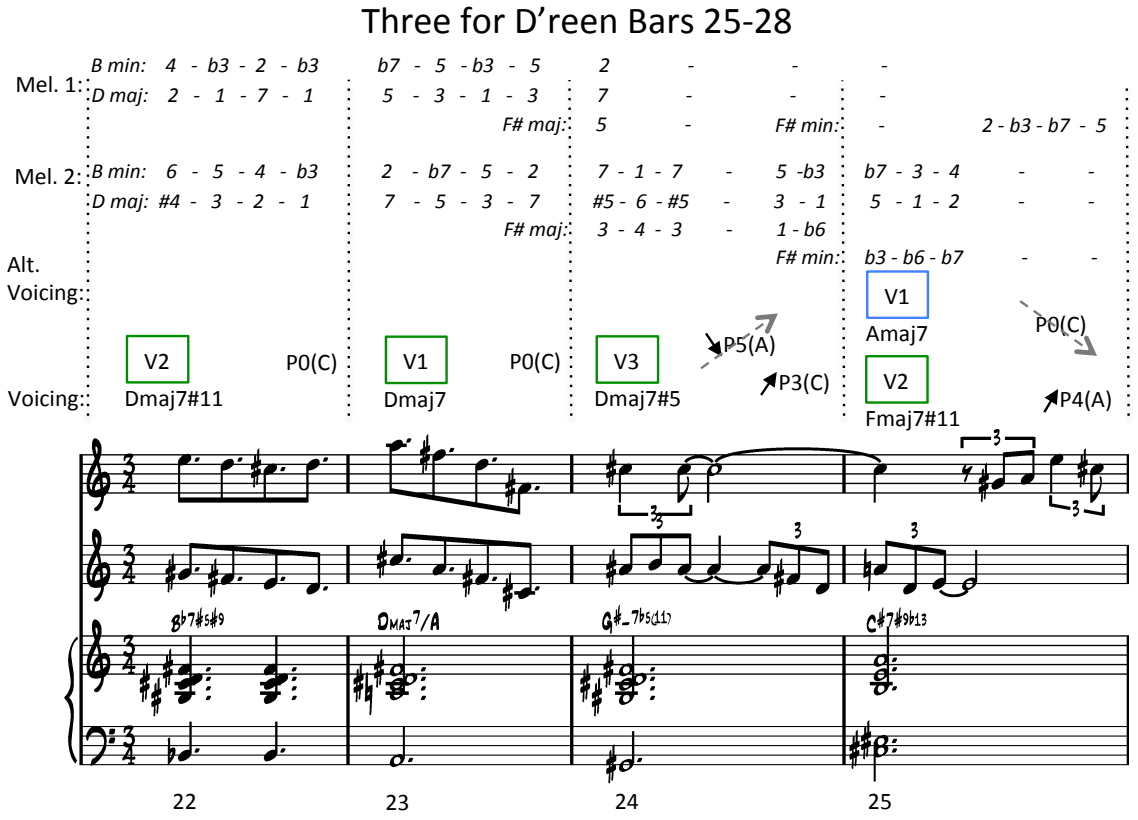


If chords '17' and '18' were part of an E minor walk-down in reverse then it appears that the same scenario might be at play here as well, with E minor as iv, and B minor as i, although the usual order of events in the walk-down have been somewhat scrambled. Chord '19' appears to be an $F^{\#}7^{b9}$ in B minor, moving to what should now be familiar as the $^{b}VImaj7^{\#11}$ in B minor (chord '20'), acting as a substitute root with the requisite Dmaj7 voicing anchoring the B minor tonality. This moves then to B minor itself with the bass note moving to the tonic. [57]

From the improviser's perspective, chords '19' through '21' provide a particularly clear example of how the interpretation of different voicing levels can effect the resulting performance outcome. If one plays through the two bars of $F^{\#}7^{b9}$ (chord '19'), then one has the choice of a Movement A cadence into chord '20' by moving toward the Dmaj7 voicing in the 'alternate' voicing row, which will then render the B minor (chord '21') as an afterthought with no real cadential movement. Or, one has the choice to delay the Movement A cadence until chord '21' by effectively staying with the orange G level voicing until moving to the green in the fourth bar. This type of strategy is very effective in creating variety in content and direction.

[57] The part-writing between the two melody lines through chords '20' and '21' is particularly remarkable.

Figure 3-18.

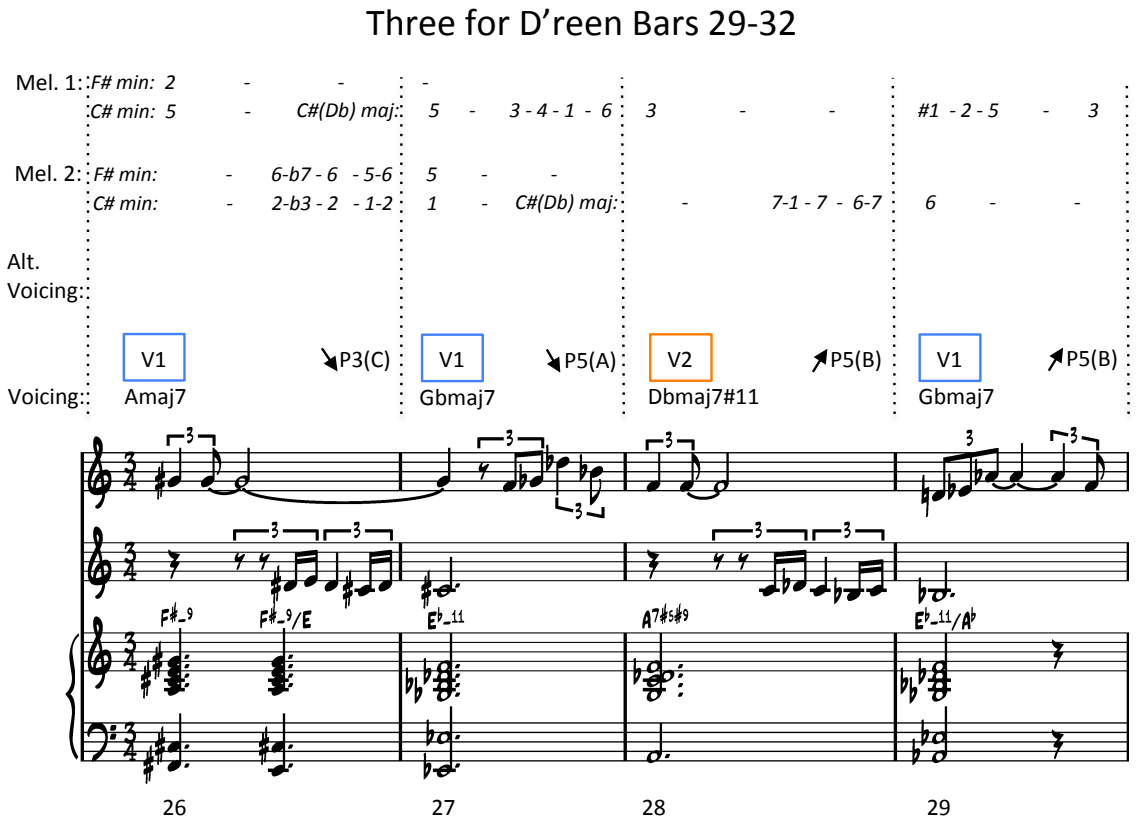


The movement from the B minor of chord '21' to '22' represents another aspect of the walk-down series of events, except this time from Bmin (iv) down to F$^{\#}$min (i). Looking back to Figure 2-70, chord '2' in that example would correspond to '22' here. It is the voicing on the ^{b}3 of the minor complex (here, B minor, so voicing on Dmaj7), with the bass note on the major 7th of B minor (A$^{\#}$ or B^{b}). Using the D major V2 yields the ^{b}7 of the resulting Bb7$^{\#5\#9}$ chord. This chord, although looking like a V7 chord, acts more like an augmented 6th chord resolving to the Dmaj7/A like a second inversion I chord.

The next series of events are remarkable. That second inversion I chord ('23') is the very chord from the top of the tune (complete with the same melody), and these next few bars proceed unadorned and without any of the complexity that obscured them at the beginning. This also marks the high point of the melody, and so makes even more of an impact. The walk-down from the iv chord (B minor, '21') continues all the way down to the i chord (F# minor, '26') uninterrupted and unveiled, revealing the hidden intent of the opening four bars.

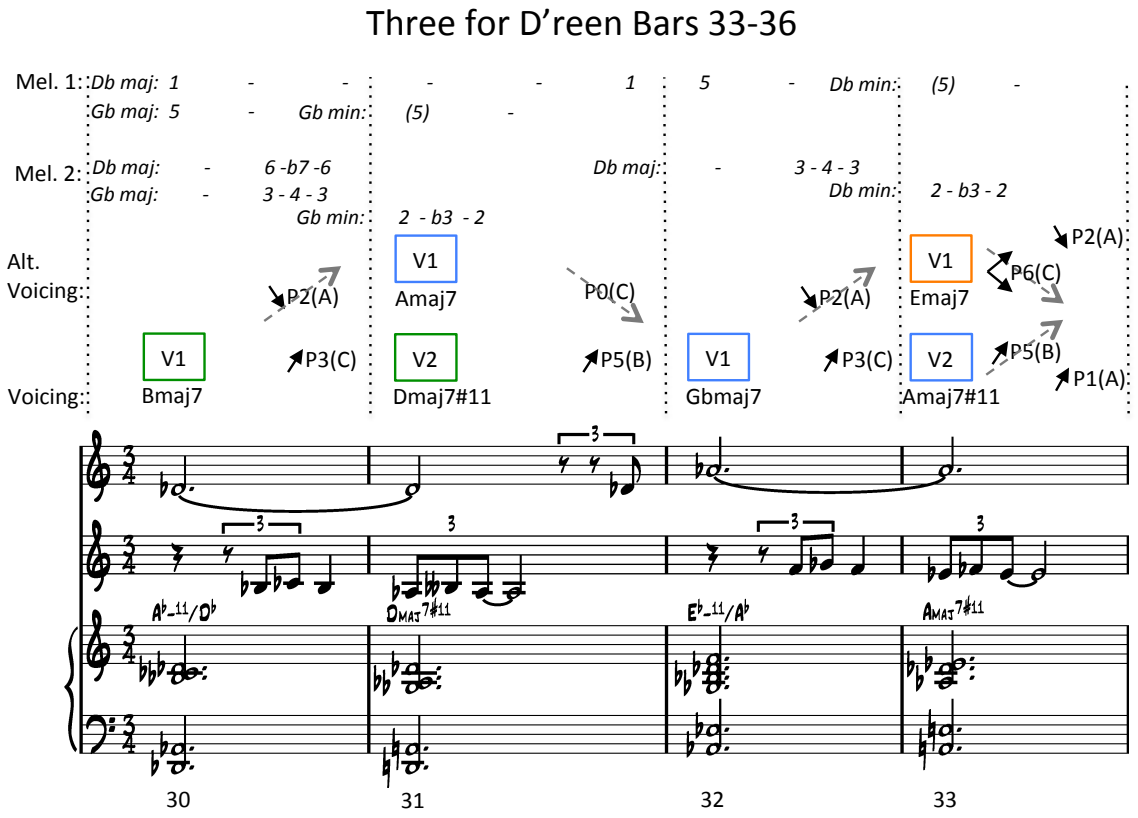
In addition, the voicing over chord '25' in the 'alternate' row is significant. Looking back to the first four bars of the song in Figure 3-9, the same voicing can be seen in this location (blue Amaj7 V1) above chord '3' as the voicing for $F^{\#}$ minor, paired with the $^{b}6$ (D) in the bass. It appears again in the same spot, but as a fairly obscure 'background' voicing sourced from harmonic major on the first degree (the same harmonic major in which the $C^{\#}7^{\#9b13}$, chord '25', can be found on the third degree).

Figure 3-19.



In Figure 3-19 another level of walk-down from F$^{\#}$min toward C$^{\#}$min (down from the iv) can be seen, but this time with some variation. Chord '27', which would normally be an E^{b}min7^{b5}, is the functionally equivalent E^{b}min11. This E^{b} minor chord, in the normal walk-down scenario would be a ii chord in D^{b}, and here is no exception. However, it becomes 'dominantized' at chord '28', and the tritone put in the bass yielding the A7$^{\#5\#9}$ chord shown, before moving to A^{b}7sus. These variants on the normal walk-down chord qualities are indicative of the switching of the destination chord from minor to major, and the melody analysis reveals this to be the case.

Figure 3-20.



Upon arrival at chord '30', it turns out that the key is not D^{b} after all. It sounds like the D^{b} in the melody is the tonic, but there is enough going on around it to put all that in doubt. Chord '30', taken literally, suggests a V7sus in Gb. Chord '31' suggests the $^{b}VImaj7^{\#11}$ in the walk-down collection of G^{b} minor. This is identical to the situation back at the beginning of the song in Figure 3-9, chords '2' and '3', except that the key is now in flats instead of sharps. There is even a held D^{b} ($C^{\#}$ at the beginning of the piece) in the melody.

The entire affair then moves up a perfect 5th (down P5, Movement A) to situate itself to return to the top with multiple levels of Movement A cadence into both voicing levels.

Throughout this entire piece Wheeler is on a journey across the surface of chromatic space, using multiple diatonic systems in the process. And yet, never once does he turn back in the direction from whence he came. This piece is different from the last in that he never arrives back at a place that looked like the beginning but a semitone away. Here he arrives back at the beginning at the same pitch level, but only after travelling tonally 'around the horn' before arriving back as seen through a different lens.

Conclusion

In his article "Notes on Harmony in Wayne Shorter's Compositions, 1964-67," Steven Strunk writes:

> An important preliminary observation is that, in those cases where standard harmonic practice seems not to apply, the bass lines provide the main clues as to prolongational function, not the chord structures above them.[58]

This author's opinion is exactly the opposite. Too much weight is placed on the root motion and not enough on the chord structures above it.[59] The problem with dependence on root motion is that it holds one captive in diatonic thinking.

Coherent harmonic and melodic movement are essentially the movements of voices to other voices, and the unit that carries that information is the thing that in this document is called the 'voicing'. It is the unit that carries moving 'voices' in it like DNA. It also, in its very design, carries the structure needed for coherence, both in diatonic systems and beyond, in a package that is compact enough to be used in real time.

It is my hope that in going through this process, the reader gets a feeling for the *largeness* of this. In understanding the big issue of functional equivalence, one must also ingest the tiny minutia that go into the simplest of systems. As one gets formatted with

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[58] Strunk, "Notes on Harmony," 326. Steven Strunk, "Notes on Harmony in Wayne Shorter's Compositions, 1964-67," *Journal of Music Theory Vol. 49,* no. 2 (Fall 2005): 303, 305, 308, accessed June 16, 2014, *JSTOR.*

[59] The irony of 'a bass player saying that the root motion is not important' is not lost on this author. Of course root motion is important, just not to the point where it obscures one's view.

the details necessary to get a larger view, one realizes that in order to see the bigger simplicity, one must be able to put it in the context of the smaller details.

The beauty of this way of looking at tonal systems is that it provides coherence through function, and it is function that spills out over the edges of diatonic systems into the larger view. This way of looking at the world is not really that removed from a very traditional viewpoint. It is based on exactly the same principles that govern a 'ii – V – I', and yet can apply in the most advanced and layered situations. There is beauty and elegance in an idea that can be applied universally.

The scale-based approach (as in 'this scale goes with this chord'), if taken literally, eventually rings hollow. It is only a partial picture. Scale sourcing is important, but ultimately it is functionality that is the umbrella under which coherence is achieved in a 'tonal' system.

With regard to Wheeler and his contributions, the widening of scale sources for voicing location is his biggest technical innovation. The introduction of the harmonic scales into the jazz compositional language is significant, but I'm sure there are others who did this as well. It's really the *way* he did it that remains his contribution. Specifically, using the $^{b}6$ of harmonic scales as a source for voicings that were already familiar to people, yet used or contextualized in ways that were not. And yet these voicings, or structural cells that are indicative of certain pitch collections, even though they come from unfamiliar sources, behave functionally in very traditional ways. They give the impression of many things going on at once.

The more I study Wheeler's music, the more I am amazed at the almost unbearable amount of cadence and resolution to be found in his compositions. But in spite of all the harmonic complexities, and the layering of these complexities, what really is the crowning achievement is the stunning clarity that rings through all the layers. The melodies stay with you forever, and it is the melodies that hang it all together. These are songs that can be sung.

So perhaps Wheeler's biggest contribution is 'clarity and good taste'.

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